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Thesis

A METHOD OF DISCOVERING INTERESTS AND EXPERIENCES OF JUNIOR HIGH SCHOOL PUPILS AS A BASIS FOR INFORMATIONAL PROBLEM-SOLVING UNITS IN ARITHMETIC

Submitted by

Bettina King

(B.S. in Ed., Bridgewater Teachers College, 1932)

In partial fulfillment of requirements for
the degree of Master of Education

1938

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A METHOD OF DISCOVERING INTERESTS AND EXPERIENCES OF JUNIOR HIGH SCHOOL PUPILS AS A BASIS FOR INFORMATIONAL PROBLEM-SOLVING UNITS IN ARITHMETIC

CHAPTER I

INTRODUCTION

During the past half century, the field of problem-solving in arithmetic has presented a challenge to educators. Hundreds of articles have been written, and many scientific investigations carried on. A few points of controversy have obviously been settled, yet educators by no means have come to an agreement as to what should be taught in written problems in arithmetic or how it should be taught.

A. Early Investigations in Problem-Solving.-- "Dogmatic opinions and unsupported statements greatly influenced educational thought for many generations. Progress was usually made by the laborious process of trial and error, and that which seemed to be successful experience was usually the standard by which practice was judged. During recent years unsupported opinion has been relegated to a subordinate position in education, and the selection and organization of subject matter as well as classroom technique are increasingly based on conclusions reached as a result of scientifically conducted experiments and investigations."[1]

The use of objective methods in measuring the success of school work began at the end of the nineteenth century, the statistical

---

[1] Brown, J.C. "A Summary of Some Significant Conclusions Reached by Investigators Relative to Arithmetic," Elementary School Journal, XXV, January 1925, p. 346.

studies of J. M. Rice [1] leading the way for other investigators to apply tests to schools to measure results. Through a series of tests, Rice found marked differences in the success of children to do school work. His data also showed that the amount of time spent on the study of arithmetic makes no difference in the test results, and he concluded that adequate supervision determines the success of arithmetic results. That supervision would make a difference was only a guess on the part of Dr. Rice. We now know that when nothing makes a difference, something is fundamentally wrong; either the work itself or the testing, possibly these and other things. When nothing makes a difference, it is a warning.

Although his procedure was criticised, it "stimulated and inspired other scientific investigation and experimentation." [2]

B. Investigations of Arithmetic Abilities.-- As an outgrowth of the studies of Rice, Stone, in 1908, tested 6,000 pupils in an effort to determine the elements of arithmetic ability. [3] He found that there is little correlation between ability in the fundamentals and ability in reasoning and that "supervision does not seem to be a potent factor in developing arithmetic abilities". [4]

A few years later, showing the same as Stone, but covering a wider field of children, Courtis found that individuals do not

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[1] Rice, J. M., Scientific Management in Education. Hinds, Noble, and Eldredge, New York, 1912.

[2] Monroe, W; S., "Development of Arithmetic as a School Subject", United States Bureau of Education Bulletin, No. 10, 1917, Washington, p.146

[3] Stone, C. W., "Arithmetical Abilities", Teachers College Contributions to Education, No. 19, Columbia University, New York, 1908.

[4] Howell, H. B., A Foundational Study in the Pedagogy of Arithmetic, Macmillan Co., 1914, p. 115

progress harmoniously in the several abilities of arithmetic and that accuracy of work is independent of arithmetical training.[1] Both Stone and Courtis showed that the arithmetic ability is made up of specific abilities among which a low correlation exists.

In 1910, Bonser found that native ability is a large factor in problem-solving.[2] In his study of fourth, fifth and sixth grade children, he found that some younger children had better mathematical judgement than some of the older ones.

Educators in England became interested in this question of arithmetical ability, and as late as 1920, Collar conducted a survey and found a fairly high correlation between ability to solve problems and ability to use rules. He found, too, that ability in each of the fundamental operations was highly correlated with ability in other operations but less closely correlated with ability in applying rules and ability in solving problems.[3]

C. Investigations of Transfer.-- Recognizing the existence of specific abilities as a part of the whole arithmetical ability naturally led to the question of transfer. In 1910 and 1911, Winch reported several experiments on the question, "Does improvement in accuracy of numerical computation transfer to arithmetical reasoning?" His results showed that improvement in accuracy of arithmetical computation seems to have produced no improvement in the accuracy of arithmetical

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[1] Courtis, S. A., "Measurement of Efficiency and Growth in Arithmetic", Elementary School Teacher, X, October and December, 1909, pp. 58-74, 177-99; XI, December, 1910, May and June, 1911, pp. 171-85, 360-70, 528-39; XII, November, 1911, pp. 127-37.

[2] Bonser, F. G., "The Reasoning Ability of Children of the Fourth, Fifth and Sixth Grades", Teachers College Contributions to Education, No. 37, 1910.

[3] Collar, D. J., "A Statistical Survey of Arithmetical Ability"British Journal of Psychology, XI, Part I, October 1920, pp. 135-58.

reasoning. He also found a high positive correlation between numerical computation and arithmetical reasoning.[1] Commenting on this experiment, Howell says, "We must conclude that the correlation is a sign of 'togetherness' due to natural or acquired ability in both functions."[2]

Winch himself, as his first conclusion states, "Much more of this work needs to be done."[3] He also says that "the results are too irregular to warrant the conclusion of any definite 'transfer', but the improvement in reasoning may be due either to release of mental energy resulting from improved facility in computation, or to the association established between the two kinds of functions usually at work together whereby continuance of the one involves greater readiness for the other."[4]

In his second experiment,[5] Winch changed his method to give a better test of transfer and at the conclusion states

> "1.) The great improvement in accuracy of arithmetical computation seems to have produced no improvement whatever in the accuracy of arithmetical reasoning.
>
> "2.) There exists high positive correlation between the two functions, numerical computation and arithmetical reasoning. This high correlation does not appear to involve such a community of function that improvement in the one operation involves improvement in the other." [6]

---

[1] Winch, W. H., "Accuracy in School Children. Does Improvement in Numerical Accuracy Transfer?" Journal of Educational Psychology, I, December 1910, pp. 557-89.

[2] Howell, H. B., A Foundational Study in the Pedagogy of Arithmetic, Macmillan Company, 1914, p. 138.

[3] Winch, W. H., op. cit., p. 587.

[4] Ibid., p. 557.

[5] Winch, W. H., "Further Work on Numerical Accuracy in School Children. Does Improvement in Numerical Accuracy Transfer?" Journal of Educational Psychology, II, May 1911, pp. 262-71.

[6] Ibid., p. 270-71.

The Dartmouth Pedagogical Department also experimented with transfer. Investigation was carried on dealing with the question as to whether mathematical reasoning transfers to reasoning in everyday affairs; or, in other words, whether one's training in mathematics will function in practical reasoning.[1] High school pupils were used in the first test, and, in a supplementary test, Dartmouth students having studied both mathematics and law were used. The results showed that 63 per cent of the high school pupils most excellent in mathematical reasoning "are at the foot of the practical reasoning series..... Of the number of pupils at the foot of the mathematical reasoning series, 47 per cent, are conspicuous for their positions at the head of the practical reasoning series."[2] The results of the Dartmouth students "were found to be strikingly parallel to those of the earlier test. Fifty per cent of the best students in law were conspicuous for their poor showing in mathematics; and 42 per cent of those poorest in law stood at the head of the series in mathematics."[2] Surely these figures show little evidence of transfer.

D. *Investigations of the Reasoning Process.*-- Arithmetic problem-solving has long been a stumbling block, and educators have tried to get some help by studying the reasoning processes of children. In 1925, Bradford gave a series of problems, impossible of solution, to a group of children to determine how many would show critical thought in discovering that the problems could not be solved and how

---

[1] Heck, W. H., *Mental Discipline and Educational Values*, John Lane Co.,
[2] *Ibid.*, p. 97

many would try some sort of manipulation.[1] As a result of the experiment, Bradford concluded that many right answers are obtained in the classroom, not as the result of critical thought but as the result of suggestion. However, when the pupils were told that some problems were impossible of solution and so were required to be critical, the number of correct answers showed a marked decrease. This experiment is especially interesting in view of the improvement in critical thinking commonly supposed to result from solving problems in arithmetic.

Kline and Anderson, in 1926, studied the reasoning processes of children and found that habit plays an important role in reasoning.[2] The general conclusion from an examination of the subjects' processess of reasoning is stated as follows:

> "This investigation tends to weaken the old assumption that reasoning is entirely independent of habits. The results show that there is a close relation between habits and reasoning, the former being necessary in furnishing both the means and the content in reasoning, the latter ceasing to function as soon as appropriate habits are formed."[3]

An attempt was made in 1929 by Bowman to determine the best means of motivating thinking on the part of solving arithmetic problems. The conclusion was reached "that the expectation of greater success leads the individual to prefer one problem over others. The inference may be made, then, that there is a tendency for the individual to select as his preference that problem, out of a group of problems, which he knows or thinks he will be more nearly successful

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[1] Bradford, E. J. G., "Suggestion, Reasoning, and Arithmetic", Forum of Education, III, February 1925, pp. 3-12.

[2] Kline, L. W., and Anderson, P. K., "The Role of Habit in Reasoning", School Science and Mathematics, XXVI, February 1926, pp. 156-67.

[3] Ibid., p. 167.

in solving. Within the limitations of this study, we seem to be justified in drawing the further inference that the expectation of greater success leads the individual to prefer one problem over others, and that belief in success causes preference rather than that preference is a cause of successful performance."[1]

Monroe, also in 1929, made an elaborate study of the nature of pupils' responses in solving problems. The conclusion was reached that a large percentage of seventh grade pupils solve problems by habit rather than by reason. "Many of them appear to perform almost random calculations upon the numbers given. When they do solve a problem correctly, the response seems to be determined largely by habit. If the problem is stated in the terminology with which they are familiar and if there are no irrelevant data, their response is likely to be correct. On the other hand, if the problem is expressed in unfamiliar terminology, or if it is a "new one", relatively few pupils appear to attempt to reason. They either do not attempt to solve it or else give an incorrect solution."[2]

E. Investigations of Factors Causing Difficulty in Problem-Solving.-- What then are the difficulties in problem-solving? Why should this part of the arithmetic program be such a stumbling-block to children? Stevenson, in 1925, lists six principal causes of failure in problem-solving, namely, "(1) physical defects, (2) lack of skill in fundamentals, (4) inability to read, which, of necessity, affects the ability to read arithmetic problems, (5) lack of general

---

[1] Bowman, H. L. "The Relation of Reported Preference to Performance in Problem-Solving," University of Missouri, Bulletin, No. 36, Vol.30, Education Series, No. 29, Columbia Missouri, 1929, p. 48.

[2] Monroe, W. S., "How Pupils Solve Problems in Arithmetic," Bureau of Educational Research, Bulletin No. 44, University of Illinois, Vol. XXVI, No. 23, Urbana, Illinois, 1929, p. 19.

and technical vocabulary, and (6) lack of proper methods or techniques for attacking problems." [1] He concludes that it is possible to improve pupils' ability to solve problems and goes on to list some of the remedial measures which have proven successful --

> "I. Training in reading problems, (1) picking out what they are asked to find, (2) what is given to help answer the question, (3) and what process, or processes, are to be used. (4) Estimate answers.
> II. Vocabulary training of technical words.
> III. Dramatizing measurement of problems.
> IV. Variety of problems from life situations.
> V. Individual instruction." [2]

However, anyone who has thought this matter through carefully could not accept the above suggestions by Stevenson as anything more than makeshifts. He does not get at the heart of the matter.

In 1927, Hydle and Clapp carried on an elaborate study of eight elements of difficulty which were assumed to affect the solution of arithmetic problems, drawing their data from 350,000 solutions of problems. The difficulties studied were (1) objective setting, (2) size of numbers, (3) unfamiliar objects, (4) arrangement of problems within a series, (5) nonessential elements, (6) experience of pupils, (7) the problem form of statement compared with the project form of statement, and (8) symbolic terms. "The study indicates that the thinking of pupils is largely a matter of visualization. This visualization concerns the conditions in the problem. Specifically, it has to do with the objects named in the problem, the relationships existing among these objects, the numerical terms in the problem, etc. Pupils learn rather slowly to separate the essential elements in a

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[1] Stevenson, P. R., "Difficulties in Problem Solving", Journal of Educational Research, XI, February 1925, p. 95.

[2] Ibid., pp. 102-103

problem from those that are nonessential and to think in terms of general principles. One dislikes to believe that the thinking of pupils cannot be developed beyond the level of visualization. This may be wholly true of some pupils and true to a certain extent of all pupils in the elementary grades. However, the present study presents evidence that pupils can think, to a certain extent, in general terms. If pupils can do this and if it is desirable to have them do it, then we have a question as to the best kind of problem content with which to develop such ability."[1] It should be noted in passing that Hydle and Clapp's proposal to replace thinking by visualization is a proposal not supported by psychology.[2]

A general technique for determining the causes of difficulty in reasoning was described in 1929 by Chase. Marked changes resulted from three months remedial treatment. As causes of difficulty in solving verbal problems, he lists the following:

1.) Insufficient mastery of fundamentals.
2.) Not applying correct process.
3.) Improper reasoning habits.
4.) Faulty reading and weak comprehension.
5.) Too rapid reading.
6.) Inadequate arithmetic vocabulary.
7.) Lack of development and drill in analyzing problems.
8.) Lack of training in estimating answers.
9.) Lack of ability to do constructive thinking.
10.) Lack of capacity to do inductive reasoning.
11.) Short attention span.
12.) Lack of initiative and self-confidence.

"It is apparent from this experiment that marked improvement can be brought about by the application of corrective treatment

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[1] Hydle, L. L. and Clapp, F. L., "Elements of Difficulty in the Interpretation of Concrete Problems in Arithmetic", Bureau of Educational Research Bulletin, No. 9, University of Wisconsin, Madison, Wisconsin, 1927, p. 83.

[2] Betts, G. H., "Distribution and Functions of Mental Imagery", Teachers College Contributions to Education, No. 26, Columbia University, New York, 1909.

based upon a systematic study and diagnosis of individual difficulties."[1]

In 1930, Lenore John observed pupils at work as they solved problems. "An analysis of the work of sixty subjects revealed errors of forty types. It was found that, while the number of pupils who made a particular error did not always decrease from one grade to the next, the totals for a group of errors and for all errors did show such decrease."[2]

Believing that certain factors contributed to individual differences in arithmetical problem-solving ability, Englehart, in 1932, reported a study of the relation of each of the factors of intelligence, computation ability, and reading ability to problem-solving ability in grade V. "The inferences may be drawn from this analysis of the variance in arithmetical problem solving ability that intelligence and computation ability are important factors in causing individual differences in problem solving ability......
Reading is likely to have a negligible, or possibly slight negative effect, on individual differences in problem solving achievement."[3]

Kramer, in 1933, investigated the effects upon problem-solving of a carefully selected group of factors. A study was made of the effect on verbal problems of interest, familiarity of situation, sentence form, style-language details, and vocabulary.

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[1] Chase, V. E., "The Diagnosis and Treatment of Some Common Difficulties in Solving Verbal Problems in Arithmetic", _Journal of Educational Research_, XX, December 1929, p. 342.

[2] John, Lenore, "Difficulties in Solving Problems in Arithmetic", _Elementary School Journal_, XXXI, November 1930, p. 215.

[3] Englehart, M. D., "The Relative Contribution of Certain Factors to Individual Differences in Arithmetical Problem Solving Ability", _Journal of Experimental Education_, I, September 1932, p. 26.

"The difference in success with the uninteresting and the interesting sections of the test material proved negligible. The children appear to have succeeded as well with the traditional type of arithmetic problem as they did with carefully selected material employing children's interests."[1] Kramer found that vocabulary was the only one of her five factors that made any appreciable difference. This is mentioned in the next section.

It is readily seen that the foregoing studies do not entirely agree on the difficulties in problem-solving, nor do they appear to get to the heart of the matter. Probably the difficulty is the assumption that isolated problems of the textbook type need to be solved at all. Why should they be? What values do they offer?

_F._ _Investigations_ _of_ _Vocabulary_.-- One of the earliest investigations of vocabulary was that conducted by Chase in 1917. The vocabularies of three or four of the newer arithmetic textbooks were tested for the understanding of them by pupils in grades three, four, and five. This was supplemented by inquiries to fifty teachers, and Miss Chase summarizes as follows: "It seems reasonable from all this to conclude that text-book problems may be a source of real waste in the teaching of arithmetic. The investigation here recorded has shown, after a careful study of numerous textbooks, that many problems involve conditions that are quite untrue to life; that many of the words used were unfamiliar or even quite unknown to the one hundred children tested; and finally that forty-five experienced teachers from various

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[1] Kramer, G. A., "The Effect of Certain Factors in the Verbal Arithmetic Problem Upon Children's Success in the Solution", _Johns Hopkins University Studies in Education_, No. 20, Johns Hopkins Press, Baltimore, Maryland, 1933, p. 88.

texts which they have used quite unsuited to the capacities of their pupils. Surely, if we do not believe in transfer of training, we are not going to ask children to solve those problems whose conditions are not true to life; for if we give them such problems containing unfamiliar situations or words, we are going to prevent the very thing for which we are working, -- clear habits of thinking by which to increase their power to make intelligent use of numbers."[1]

In an address delivered at a meeting of the Director's of Educational Research at Atlantic City, in 1918, Monroe made the following statement: "Frequently school men are heard to express a desire for a convenient instrument with which to measure reasoning ability in arithmetic. This is surprising in view of the work of Rice and the tests devised by Stone, Courtis, Bonser, Buckingham, and Starch. It is the judgment of the speaker..... that the explanation lies in a rather intuitive feeling that the available reasoning tests are inadequate which is probably prompted by the fact that we have no satisfactory analysis of the mental processes involved in arithmetical reasoning, and of the subject matter of problems."[2] In studying the subject matter of problems, Monroe examined eight textbooks and was astounded by the variety of language used. In examining nearly 9,000 problems, only 26 types were common to all texts.

In 1921, Spaulding made an analysis of the content of six third-grade arithmetics. The purpose of the study was to determine to what extent certain well-known primary texts approach the standards set by

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[1] Chase, Sarah, "Waste in Arithmetic", Teachers College Record, XVIII, September 1917, p. 370.

[2] Monroe, W. S., "The Derivation of Reasoning Tests in Arithmetic", School and Society, VIII, September 1918, pp. 295-296.

the Committee on Minimum Essentials, the Committee on Economy of Time in Education, and numerous individual investigators. Six third-grade textbooks were chosen and the problems and examples analyzed. Following are some of the conclusions which deal with the subject of problem-solving: --

1. "There is much need for standardization of third-grade arithmetic texts as to the subject matter of problems presented for solution.

2. "A study of the subject matter of problems shows an increasing elimination of those which relate to no human activity, or which can be identified with no activity -- and, as a corollary, an increase in the proportion of worth-while, intelligible problems.

3. "Textbook makers are apparently coming to appreciate the need for making their problems representative of the fields of activity in which pupils are likely to be engaged." 1/

Osburn studied reading difficulties in arithmetic in 1925 and listed the following causes of misunderstanding:

"1.) Lack of vocabulary.
2.) Failure to read or see all the elements in the problem.
3.) Failure to resist the disturbance caused by preconceived ideas.
4.) Inability to read between the lines.
5.) Failure to understand fundamental relations, particularly those of the inverse type.
6.) Failure to make a quick change of mental set.
7.) Failure to generalize or transfer meanings.
8.) Failure to interpret cues correctly.
9.) Responding to irrelevant elements." 2/

A study similar to that made by Chase was carried on by Monroe and Clark in 1926. 3/ Ten textbooks were analyzed for the problem

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1/Spaulding, F. T., "An Analysis of the Content of Six Third-Grade Arithmetics", Journal of Educational Research, IV, December 1921, pp. 422-23.

2/Osburn, W. J.,"Reading Difficulties in Arithmetic", Department of Education, Madison, Wisconsin, 1925, p. 8.

3/Monroe, W. S. and Clark, J. A., "The Teacher's Responsibility for Devising Learning Exercises in Arithmetic", Bureau of Educational Research, Bulletin, No. 31, University of Illinois, Vol. XXIII, No. 41, Urbana, Illinois, 1926.

content and the vocabulary used. This investigation adds conclusive data to that already available concerning the variety of language used in arithmetic problems.

McClure, in 1926, made a summary of material relating to difficulties encountered in reading arithmetic problems and listed four considerations:

"1.) The reading process when numerals are encountered is different from that in ordinary reading.

"2.) The technical vocabulary of arithmetic required specific instruction other than the vocabulary drills necessary in the reading class.

"3.) In the problem-solving exercises in arithmetic, children must be given specific training in comprehending relationships of main ideas.

"4.) The ability to choose processes and to estimate the reasonableness of results must be improved."1/

A further study of vocabulary was reported in 1926 by Olive Gray. Various lists of special terms were published with which children should be familiar in order to avoid difficulty in reading problems in arithmetic.2/

In 1926, Brooks made an analysis of the technical vocabularies of five sets of arithmetic textbooks. "All told, there are 117 words occuring in only one book; 76, in two books; 70, in three books; 56, in four books; and only 110 that occur in all five books."3/ Brooks clearly indicates that the authors of the five sets of arithmetics

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1/McClure, Worth, "Learning to Read Arithmetic Problems", Teachers Journal and Abstract, I, March 1926, pp. 183-88.
2/Gray, Olive, "Teaching Pupils to Read Arithmetic and Other Subject Matter", Elementary School Journal, XXVI, April 1926, pp. 607-18.
3/Brooks, S. S., "A Study of the Technical and Semi-Technical Vocabulary of Arithmetic", Educational Research Bulletin, Ohio State University, V, May 26, 1926, p. 222.

differ widely in the choice of technical terms with which they expect children to become familiar.

Books and magazines read by children were analyzed for arithmetical terms in 1926 by Partridge. Her analysis revealed a total of 2950 arithmetical situations. The following conclusion was reached: "Vivid, concrete, personal experiences in and with arithmetical situations which we have found that the child actually encounters in reading must be supplied by the teacher of arithmetic in the arithmetic period."[1]

In contrast to previous studies of vocabulary which were inclined to list all the technical words in arithmetic textbooks, Pressey and Elam, in 1932, attempted to organize the words and determine those which should appear in a list of essentials. Each word was judged on its frequency, its importance, and its "social usefulness". "When the 274 words selected on the basis of frequency, the 326 on importance, and the 103 on social value were combined, it was found that only 117 words met all three criteria (and 16 of these were questioned as to social usefulness). These 117 technical terms may, then, be regarded as the essential "core" of arithmetic words without which no child can progress in the subject."[2]

G. Improving Problem-Solving Ability by Vocabulary Training.-- As a result of the vocabulary studies, educators attempted to improve children's ability in problem solving by special training in the arithmetical vocabulary. One of the earliest reported was that of

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[1] Partridge, C. M., "Number Needs in Children's Reading Activities", Elementary School Journal, XXVI, January 1926, p. 366.

[2] Pressey, L. C. and Elam, M. K., "The Fundamental Vocabulary of Elementary School Arithmetic", Elementary School Journal, XXXIII 46-50, September 1932, p. 48.

Wilson in 1922. Several methods of teaching children to read problem material were tried in the schools of Cincinnati. Three methods, having been tried out sufficiently to be evaluated were described; (1) a plan of questions leading the child to think straight; (2) a plan of having the children tell stories based on the problem; (3) a plan of dramatizing the situation. Marked improvement in test scores were shown as a result of each of the three methods described. As a part of her conclusions, Miss Wilson says, "The teachers of these classes say that the various plans have added interest to the solving of arithmetic problems".[1]

In commenting on Terry's 1922 study of reading difficulties,[2] Buswell and Judd comment as follows: "Very important lessons for the teacher issue from the analysis which Terry has made. In the first place, it becomes evident why pupils are often greatly confused in reading arithmetic problems. In the second place, it becomes equally evident that pupils must be given much opportunity to cultivate effective reading habits if they are to escape this confusion. This means attention on the part of teachers to the vocabulary of arithmetic, careful explanation of many terms which are now too often taken for granted, and attention to the grouping of numbers."[3]

Osburn and Drennan, in 1931, made a study of the ability of pupils who have been taught a series of problem cues to solve problems

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[1] Wilson, Estaline, "Improving the Ability to Read Arithmetic Problems", Elementary School Journal, XXII, January 1922, p. 386.

[2] Terry, P. W., "How Numerals are Read: An Experimental Study of the Reading of Isolated Numerals and Numerals in Arithmetic Problems", Supplementary Educational Monographs, No. 18, University of Chicago, 1922.

[3] Buswell, G. T. and Judd, C. H., Summary of Educational Investigations Relating to Arithmetic, Monograph No. 27, University of Chicago Press, June 1925, p. 154-55.

containing different cues and also to solve problems containing additional vocabulary difficulties. The results showed a marked amount of transfer. Those of high intelligence showed more transfer than those of low intelligence, although all improved. The authors suggest as a "sound technique" for problem-solving the following: "Teach a few of the most important problem types thoroughly, and depend upon transfer for the remainder".[1/]

H. Improving Problem-Solving Ability by Problem Analysis.--A second method used in an effort to improve problem-solving ability has been that of problem analysis. In 1922, Newcomb tried to discover the best method of teaching pupils to solve problems. During a period of six weeks each problem was to be done on a solution sheet including a statement of the problem, how to read the problem, the data required, the processes necessary for a solution, approximate answer, computed answer, and check. Twenty problems were given to two seventh grades and two eighth grades, and tests were given before and after the experiment. "The final results secured through the experiment classes, when examined from any angle, show appreciable superiority over the records made by the pupils of the control classes."[2/]

Realizing the prevalence of the "Trial and Error" method of pupils in solving problems, Greene, in 1925, analyzed the factors in the solution of verbal problems and listed them as follows: (1) Comprehension, (2) Analysis and Organization, (3) Recognition of process

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[1/] Osburn, W. J. and Drennan, L. J., "Problem Solving in Arithmetic", Educational Research Bulletin, Ohio State University, X, March 4, 1931, p. 128.

[2/] Newcomb, R. S., "Teaching Pupils How to Solve Problems in Arithmetic", Elementary School Journal, XXIII, November 1922, p. 189.

involved, (4) Solution, (5) Verification. He accepts the results of Miss Wilson's study showing that drill in reading increases reasoning scores and that drill in fundamentals does not result in a like increase. The next step, he believes, is to try to determine the value of drill in selecting and recognizing the process involved and in the solution of the problem. Problems of two, three, and four steps were given to a sixth grade group, which was afterwards divided into a drill group and a control group, and later retested. " In general this investigation shows that it is better to spend even a very limited amount of class time in drilling on the selection of the process necessary to solve a verbal arithmetic problem than to follow the normal classroom procedure, as in the case of the control class."[1]

In 1925, Clark and Vincent experimented with the conventional method of analysis and a so-called "method of graphic analysis" on seventh and eighth grade pupils. They found that many pupils solve problems without using the conventional methods of analysis and that the graphic method gives superior results. The conventional method directs pupils to analyze the problem by telling what is given, what should be found, how the facts should be used, and finally getting the answer. The graphic analysis is accompanied by a picture of relationships or dependencies. "In this study the pupils who practiced the 'Graphical Analysis Method' improved during practice more than the group who practiced the Conventional Analysis Method."[2]

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[1] Greene, Harry A., "Directed Drill in the Comprehension of Verbal Problems in Arithmetic", Journal of Educational Research, XI, January 1925, p. 40.
[2] Clark, J. R. and Vincent, E. L., "A Comparison of Two Methods of Arithmetic Problem Analysis", Mathematics Teacher, XVIII, April 1925, pp. 232-233.

Lutes carried on an experimental study, in 1926, of various methods of teaching problem-solving in the sixth grade. She compared three methods, namely, the computation method, the method of choosing operations, and the method of choosing solutions. Using a suitable technique of investigation, Lutes arrived at the conclusion that the emphasis on computational skill produced the greatest gain in both computation and in seasoning. The final comment of Lutes is significant. "Improvement in computational accuracy does increase ability to solve verbal problems. Whether it increases ability to do arithmetical reasoning cannot be stated from the results of this study. It does improve ability to solve verbal problems, which is the school's definition of arithmetical reasoning."[1]

The results of a committee investigation of methods of teaching problem-solving were published in 1926 by Washburne and Osborne. They stressed the need of much experience in solving problems. The experimental work centered about a comparison of three methods of teaching problem-solving: (1) giving the child many practice problems to solve; (2) training the child to analyze each problem according to a definite technique which was prescribed; (3) training the child to see the analogy between the more difficult written problems and simple oral problems of the same type. A detailed description of each method was given. The three teaching methods used were based on a six weeks training period; the work of the committee lasted two years. The outstanding conclusion and the recommendations are stated as follows:

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[1] Lutes, O. S., "An Evaluation of Three Techniques for Improving Ability to Solve Arithmetic Problems", A Study in the Psychology of Problem-Solving. University of Iowa Monographs in Education, First Series, No. 6, Iowa City, 1926, p. 38.

"Training in the seeing of analogies appears to be equal or slightly superior to training in formal analysis for the superior half of the children; analysis appears to be decidedly superior to analogy for the lower half; but merely giving many problems, without any special technique of analysis or the seeing of analogies appears to be the most effective method of all. The general recommendations, then, growing out of the investigation are as follows: Problems should be so constructed as to present real situations familiar to the child. Children should be given many such problems to solve without special training in any generalized, formal technique of analyzing problems. Concentration on practice in solving practical problems will yield gratifying results."[1]

Adams published a comparative study of two methods of teaching problem-solving in 1930. Children of grades three and four were used. In grade III-A, slight superiority was found in the method involving the greater amount of analysis, while in other grades the results were indecisive.[2]

In 1931, Hanna reported an experiment to determine which of three methods of teaching fourth and seventh grade pupils to solve two-step problems is superior. The conventional-formula method was found to be distinctly inferior to the dependencies method and the individual method. The dependencies method was found to be superior in the fourth grade class.[3]

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[1] Washburne, C. W. and Osborne, Raymond, "Solving Arithmetic Problems", Elementary School Journal, XXVII, December 1926, p. 304.
[2] Adams, R. E., A Study of the Comparative Value of Two Methods of Improving Problem-Solving Ability in Arithmetic, University of Pennsylvania, Philadelphia, 1930.
[3] Hanna, Paul R., "Arithmetic Problem Solving", Teachers College Record, XXXII, May 1931, pp. 746-47.

Mitchell reconstructed a set of five difficult reasoning problems, in 1932, by adding a series of analytical questions to each. By comparing the scores on the reconstructed problems with previous scores on the original set, he found marked improvement as a result of the analytical exercises, and concludes that "detailed analytical questions on problems seem to aid the pupils in the solution of the problems".[1]

I. Improving Problem-Solving Ability by Individual Drill.--Training in vocabulary and in problem analysis seems to have improved problem-solving ability only slightly. Other methods to result in more improvement were sought. In 1927, Graham outlined a method of determining the percentage of improvement in arithmetic reasoning which would be applicable in any school. His informal method of measuring improvement in ability to solve problems by the pupils, the selection of the best of these by the teachers, the standardizing of the selected problems for given grades, and then, at a later date the exchanging of problems between pairs of rooms. On trying this method in a large elementary school, he found a consistent improvement of from 5 - 6.5%[2] in each grade over a two-month interval.

In 1930, Stone conducted an experiment to determine the value of certain diagnostic and practice tests as a means of improving ability to reason in arithmetic. "This study affords data for tentative conclusions regarding the value of the Stone Diagnostic-

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[1] Mitchell, Claude, "Problem Analysis and Problem Solving in Arithmetic", Elementary School Journal, XXXII, February 1932, p. 466.
[2] Graham, V. O., "Arithmetic Reasoning Project and the Measurement of Improvement", A Co-operative Report of Studies of the Curriculum and of Supervision, Second Yearbook, Chicago Principals' Club, 1927, pp. 86-87.

Practice Tests.

"(1) Comparative gains made by paired equivalent pupils show that the use of these tests produces greater gains in ability to reason in arithmetic than does the regular work in arithmetic.

"(2) The evidence shows that the gain in reasoning ability secured by these tests transfers to reasoning demanded by other problems of different content, though of similar nature.

"(3) This transfer is greater than the transfer secured by an equivalent amount of regular arithmetic work." [1]

Rolker, in 1931, gave a test in problem-solving to a group of children, after which, each child was drilled on his needs, such as: technical terms, approximation of answers, selection of the process. Frequent checks were made, and the pupils were retested after fifteen weeks. Gains of about a year-and-a-half were recorded. [2]

J. Improving Problem-Solving Ability by Appealing to the Imagination. Not being satisfied with previously tried methods, educators tried to improve the ability to reason by appealing to the imagination. In 1927, Myers criticised the briefly worded problem and urged that an appeal be made to the imagination of the child in the formulation of problems. To illustrate his point, he cited two problems which were presented to children in the fifth grade. The first was brief and uninteresting. The second, using the same figures and involving the same arithmetical processes was worded in

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[1] Stone, C. W., "An Experimental Study in Improving Ability to Reason in Arithmetic", Twenty-Ninth Yearbook of the National Society for the Study of Education, Public School Publishing Co., 1930, pp. 589-99.

[2] Rolker, Edna, "Arithmetic Problem Solving. The Principal and Supervision", Tenth Yearbook, Department of Elementary School Principals of the N. E. A., X, April 1931, pp. 471-75.

an interesting manner. He found that 197 of the 513 children solved the first problem correctly, and that 253 solved the second one correctly. Myers attributes the difference in results to the more wordy and interesting manner of stating the second problem.[1]

Otis proposed and illustrated a new method of solving certain types of arithmetic problems in 1928. He proposed and explained a visual method of attacking certain problems of the type which he found most difficult among the twenty problems in the Otis Arithmetic Reasoning Tests. He showed how this visual method may be substituted for algebraic procedure and then gave a series of twenty problems which could be solved by this method.[2] This visual method is practically the same as the graphic method noted by Clark and Vincent.

In a 1929 study, Wheat tried "to determine which type of problem - the conventional or the imaginative - possesses the greater merit, and, if any special merit is discoverable, to determine for what class of pupils such merit is helpful."[3] Little difference was found between the responses to the conventional type of problems and responses to the imaginative type.

Mitchell studied the specific type of problem and the general problem, in 1929, finding little transfer of training. A child may be able to find the perimeter of a room when given the length and width, but he cannot tell in words how to find the perimeter of a

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[1] Myers, G. C., "Imagination in Arithmetic", Journal of Education, CV, June 13, 1927, pp. 662-63.
[2] Otis, A. S., "The Visual Method of Solving Arithmetic Problems", Mathematics Teacher, XXI, December 1928, pp. 483-89.
[3] Wheat, H. G., "The Relative Merits of Conventional and Imaginative Types of Problems in Arithmetic", Teachers College Contributions to Education, No. 359, Columbia University, New York, 1929, p. 7.

room.[1]

K. Improving Problem-Solving Ability by Utilizing Life Situations.-- An entirely different approach to problem-solving has come about as a result of Wilson's work and studies. In 1911, the Connorsville Course of Study in Mathemtics was published, which described in detail Wilson's original plan of a school-pupil survey to determine the social-utility of school subject-matter. On the basis of this survey a course of study for the grades was made which includes suggestions for useful informational problem-solving units.[2] This study was again reported in 1919.[3] In 1921, Wilson and Wilson, in one chapter of their book "The Motivation of School Work",[4] outlined several problem-solving units based on material which is socially useful. In 1925, Wilson reported a study of concrete situations to be used in motivating arithmetic. From 5,000 teachers throughout the United States, a list of games and devices and of larger life situations which are useful in the motivation of arithmetic were collected. These have been classified and presented in considerable detail in a sixty page bulletin.[5]

An extension of Wilson's original "Survey of the Social and Business Usage of Arithmetic", which appeared in 1918, was published

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[1] Mitchell, Claude, "The Specific Type of Problem in Arithmetic versus the General Type of Problem", Elementary School Journal, XXIX, April 1929, pp. 594-96.

[2] Connorsville Public School, Course of Study in Mathematics for the Elementary Grades, Connorsville, Indiana, September 1911.

[3] Wilson, G. M., "A Survey of the Social and Business Usage of Arithmetic", Teachers College Contributions to Education, No. 100, Columbia University, New York, 1919.

[4] Wilson, H. B. and Wilson G. M., The Motivation of School Work, Houghton Mifflin Co., 1921.

[5] Wilson, G. M., "Motivation of Arithmetic", United States Bureau of Education, Bulletin, 1925, No. 43, Washington, 1926.

in 1926 which would base a course of study on the needs of social usage. "It is assumed that arithmetic in the grades in justifiable only on the basis of its utility in the common affairs of life".[1] ..... "The problems of arithmetic used by the public are simple. The necessary tool material could be taught in four years. We suggest Grades 3,4,5 & 6. During these grades and after, motivated problems should lead the children out into actual business situations. Much useless material is now in the curriculum in arithmetic. It should be eliminated. Only such material as will be useful in everyday life should be included. The problems in arithmetic should center around business situations because life's problems in arithmetic do. The community's arithmetic is sufficient to form the basis of the general work in the elementary schools."[2]

In agreement with Wilson's theory of written problem units on a real life basis, McMurry, in 1926, published a plea for considering arithmetic as a social study. He discussed the need of vitalizing arithmetic through the introduction of problems of real social significance. McMurry further contends that problems should not be isolated but should be woven into stories and series of stories in order to provide interesting and connecting situations for children. To illustrate how problems could be made socially significant, McMurry gives the following examples:

"1) Abraham Lincoln was born in 1809 and dies in 1865. How old was he when he died? Could people now be living who knew Lincoln?

"2) The first telephone was used in 1875. How many years ago

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[1] Wilson, G. M., What Arithmetic Shall We Teach? Houghton Mifflin Co., Boston, 1926, p. 1.
[2] Ibid, pp. 58-59.

was that? Do you know anyone who was living then?

"3) Our slaves were set free in 1863. How old would negroes now have to be who were once slaves in the U. S.?" [1]

In an article entitled "Mathematics for the Consumer", Harap, in 1927, supports the Briggs theory [2] that "the purpose of education is to learn to do well those things which we need to do in life". [3] He shows that consumers are inefficient in performing necessary mathematical calculations and suggests a secondary curriculum based upon the actual needs of people.

In a study, published in 1927, Washburne reported a group experiment carried on in sixteen school systems to answer the question, "Will children acquire greater ability to apply the fundamental processes in arithmetic to the solution of verbal problems in the processes are introduced through situations within the children's experience and are applied throughout the period of practice directly to the solution of problems than if the processes are learned and practiced without reference to concrete situations and later applied to the solution of problems?" [4] After analyzing extensive data, the conclusion was reached that teaching the mechanics of arithmetic separately and then applying them to the solution of practical problems does not lead to difficulty in making practical application of

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[1] McMurry, F. M., "The Question that Arithmetic is Facing and its Answer", Teachers College Record, XXVII, June 1926, p. 877.

[2] Briggs, T. H., "Objectives of Secondary Education", National Education Association, Addresses and Proceedings of the Sixtieth Annual Meeting, LX, 1922, pp. 1121-24.

[3] Harap, Henry, "Mathematics for the Consumer", Educational Review, LXXIV, October 1927, p. 167.

[4] Washburne, C. W., "Comparison of Two Methods of Teaching Pupils to Apply the Mechanics of Arithmetic to the Solution of Problems", Elementary School Journal, XXVII, June 1927, p. 758.

the mechanics of arithmetic to the solution of problems. However, the superiority of this procedure over the other procedure was not very marked.

In 1928, Washburne and Morphett studied the effect of familiar and unfamiliar situations in the solution of arithmetic problems. Mixed problems, some having familiar and others unfamiliar situations were presented in random order to 441 children in the 5th grade. The computations were matched. While in several cases the difference between the two types of problems is not large, the results show a higher percentage of correct solutions for those problems which are based on familiar situations.[1]

After studying the results of the Stone Reasoning Tests, Connor, in 1934, found that "the best material for use in teaching problem-solving in arithmetic seems to be problems selected by pupils themselves from their environment to illustrate the processes they are expected to learn to use in problem-solving".[2]

Helen White's study, reported in 1934, added valuable data on problems in arithmetic. The following conclusions are significant:

1.) "A larger percentage of children select the right process in solving an arithmetic problem when the situation in that problem is based on the child's experience."

2.) "A larger percentage of children achieve the correct answer to a problem when the situation involved in that problem is based on the child's experience."

3.) "A larger percentage of children select the wrong process in solving an arithmetic problem when the situation involved in

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[1] Washburne, C. W., and Morphett, M. V., "Unfamiliar Situations as a Difficulty in Solving Arithmetic Problems", Journal of Educational Research, October 1928, pp. 220-24.

[2] Connor, W. L., "What Materials are Most Useful to Children in Learning to Solve Problems?" Educational Method, XIII, April 1934, p. 369.

solving an arithmetic problem when the situation involved in that problem is without the experience of the child.

4.) "A larger percentage of children fail to complete a two-step problem when the situation involved in that problem is not within the experience of the child.

5.) "A larger percentage of children fail to attempt the problem when the situation involved in that problem is not within the experience of the child." [1]

Miss White checked on pupil experiences for familiarity of situations, instead of relying on teacher judgment.

One of the promising lines of improvement in problem work has been the development of informational problem-solving units on a motivated basis as in life. Such units as the following have resulted:

Buying a lot and building a house. [2]

Saving and investing money. [3]

Renting an appartment. [4]

The family budget. [5]

Insurance for the family. [6]

Banking. [7]

My bank book. [8]

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[1] White, H. M., "Does Experience in the Situation Involved Affect the Solving of a Problem?" Education, LIV, April 1934, p. 455.

[2] Connersville Public Schools, Course of Study in Mathematics for the Elementary Grades, Connersville, Indiana, September 1911.

[3] Wilson, H. B. and Wilson, G. M., Op. cit., pp. 158-82.

[4] Cummings, Irene, Putting Arithmetic Problem-Solving on a Functional Basis, Unpublished master's thesis, Boston Univerwity School of Education, 1934.

[5] Hennigar, L. L., The Family Budget, Unpublished master's thesis, Boston University School of Education, 1935.

[6] Gallagher, G. B., Insurance, An Informational Unit for J. H. S. Mathematics, Unpublished master's thesis, Boston University School of Education, 1938.

[7] Russell, C. A., Banking as the Junior High School Child Should Know It, Unpublished master's thesis, Boston University School of Education, 1934.

[8] Quattlander, Elizabeth, Replacing Systematic Drill with Informational Units in Second Grade Arithmetic, Unpublished master's thesis, Boston University School of Education, 1935.

Similar units have in recent years been widely suggested in reports[1] and courses of study.[2]

L. Need of a Method for Discovering Pupil Interests and Experiences.-- Judging from the studies already mentioned, pupil success in solving problems in greatly influenced by their interests and experiences. If these are to be made the basis for units of work, what method can the teacher use in discovering the interests and experiences of her pupils? Does age and environment affect these? It is the purpose of this thesis to present a method for discovering the interests and experiences of junior high school pupils which may be used as a basis for the selecting of informational problem-solving units.

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[1] National Education Association, Department of Superintendence, Fourth Yearbook, Washington, 1926, pp. 173-220.
[2] Berkeley, California, Course of Study in Arithmetic, 1923.

TABLE 1.

A SUMMARY OF INVESTIGATIONS OF THE FACTORS AFFECTING THE SOLUTION OF WRITTEN PROBLEMS

Factor Investigated	Author	Date
Arithmetic Abilities	J. M. Rice	1895-1912
	C. W. Stone	1908
	S. A. Courtis	1909-1911
	F. G. Bonser	1910
	D. J. Collar	1920
Transfer	W. H. Winch	1910-1911
	Dartmouth Pedagogical Dept.	1911
The Reasoning Process	E. J. G. Bradford	1925
	L. W. Kline and P. K. Anderson	1926
	H. L. Bowman	1929
	W. S. Monroe	1929
Difficulties in Problem-Solving	P. R. Stevenson	1925
	L. L. Hydle and F. L. Clapp	1927
	V. E. Chase	1929
	L. John	1930
	M. D. Englehart	1932
	G. A. Kramer	1933
Vocabulary	S. E. Chase	1917
	W. S. Monroe	1918
	F. T. Spaulding	1921
	W. J. Osburn	1925
	W. S. Monroe and J. A. Clark	1926
	W. McClure	1926
	O. Gray	1926
	S. S. Brooks	1926
	C. M. Partridge	1926
	L. C. Pressey and M. K. Elam	1932
Vocabulary Training	E. Wilson	1922
	P. W. Terry	1922
	W. J. Osburn and L. J. Drennan	1931

Factor Investigated	Author	Date
Problem Analysis	R. S. Newcomb	1922
	H. A. Greene	1925
	J. R. Clark and E. L. Vincent	1925
	O. S. Lutes	1926
	C. W. Washburne and R. Osborne	1926
	R. E. Adams	1930
	P. R. Hanna	1931
	C. Mitchell	1932
Individual Drill	U. O. Graham	1927
	C. W. Stone	1930
	E. Rolker	1931
Imagination	G. C. Myers	1927
	A. S. Otis	1928
	H. G. Wheat	1929
	C. Mitchell	1929
Life Situations	G. M. Wilson	1911, 1919, 1926
	Connorsville Course of Study	1911
	H. B. Wilson and G. M. Wilson	1921
	Berkeley Cal. Course of Study	1923
	F. M. McMurry	1926
	Fourth Yearbook, Dept. of Supt.	1926
	H. Harap	1927
	C. W. Washburne	1927
	C. W. Washburne and M. V. Morphett	1928
	W. L. Connor	1934
	H. M. White	1934
	I. Cummings	1934
	C. A. Russell	1934
	L. L. Hennigar	1935
	E. Quattlander	1935
	G. B. Gallagher	1938

CHAPTER II

THE PROBLEM OF THE THESIS AND ITS METHOD

A. General Statement.-- If informational problem-solving units in arithmetic are to be based upon the child's interests and experiences, the teacher must have a way of discovering these. What method could give better results than to go to the child himself? The teacher may, in her own mind, have an idea of these interests and experiences, but she has no authentic basis for her opinion until she has consulted the child. How can this best be done? It was thought that a carefully planned questionnaire should bring forth the information desired. By using leading questions and giving the child an opportunity to express himself in his own words, the author felt that the results should be satisfactory.

B. Developing the Questionnaire.-- The items of the questionnaire in its final form came about as a result of several preliminary forms given to sixth, seventh and eighth grade pupils, as well as from suggestions offered by these pupils concerning their interests and experiences. The final form of the questionnaire as it was given to 500 children is shown in Exhibit 1, page 33.

C. General Plan of Questionnaire.-- The questionnaire is made up of eleven parts, each one planned to bring forth information of a different type of interest or experience. The first part is concerned with bicycles, and by means of definite leading

EXHIBIT 1 - SHOWING THE FORM OF THE QUESTIONNAIRE AS USED

TO THE BOYS AND GIRLS :-

This questionnaire contains things in which many of you are interested. Some questions you may not be able to answer, and you will leave them blank. Please answer as many questions as you can, using as few words as possible, yet making your answers clear.

Fill in the blank spaces below.

Name ____________ School ____________

Grade ____________ Age ______ Town or City ____________

Girl or Boy ____________

REMEMBER ----Do not answer any question unless you know your answer is correct.

BEGIN

Put a check mark (✓) next to the correct answer to each question. If you are not sure, leave it blank.

I. Bicycles

1. Can you ride a bicycle? Yes______ No______
2. Do you own a bicycle? Yes______ No______
3. Did you buy it yourself? Yes______ No______
   a. How did you earn the money?____________
4. How much did your bicycle cost?____________
   a. Did you pay cash for it? Yes______ No______
   b. Did you pay for it in installments? Yes______ No______
   c. Was it given to you as a present? Yes______ No______
5. Have you ever sold a bicycle? Yes______ No______
   A. For how much did you sell it?____________
   b. Why did you sell it?____________

II. Money

6. Do you receive an allowance? Yes______ No______
7. How much do you receive each week?____________
   a. Do you buy your clothes with your allowance? Yes______ No______
   b. What else is your allowance spent for?____________
8. Do you ever work to earn money? Yes______ No______
9. Check below the ways you earn money
   a. Run errands______
   b. Sell papers or magazines______
   c. Work around the home______
   d. Take care of children______
   e. Shovel snow______
   f. Cut Grass______
   g. Work at a roadside stand______
   h. What other ways____________
10. Do you buy your own clothes with the money that you earn? Yes______ No______
11. Have you an account in a savings bank? Yes______ No______
    a. How do you get the money to put in the bank?____________
    b. What interest do you receive?____________
    c. For what are you saving your money?____________
12. Do you ever buy groceries for your home? Yes______ No______
    a. Do you charge the cost? Yes______ No______
    b. Do you pay cash for the groceries? Yes______ No______

III. Sports

13. Do you know how to play baseball? Yes ______ No ______
14. Do you like to play baseball? Don't know How ______ Yes ______ No ______
15. Do you know how to play football? Yes ______ No ______
16. Do you like to play football? Don't know how ______ Yes ______ No ______
17. Do you know how to play ice hockey? Yes ______ No ______
18. Do you like to play ice hockey? Yes ______ No ______
19. Do you know how to swim? Yes ______ No ______
20. Do you like to swim? Don't know how ______ Yes ______ No ______
21. Do you know to ice skate? Yes ______ No ______
22. Do you like to ice skate? Don't know how ______ Yes ______ No ______
23. Do you know how to play tennis? Yes ______ No ______
24. Do you like to play tennis? Don't know how ______ Yes ______ No ______
25. Do you know how to ride horseback? Yes ______ No ______
26. Do you like to ride horseback? Don't know how ______ Yes ______ No ______
27. Do you know how to play soccer? Yes ______ No ______
28. Do you like to play soccer? Don't know how ______ Yes ______ No ______
29. Do you know how to play basketball? Yes ______ No ______
30. Do you like to play basketball? Don't know how ______ Yes ______ No ______
31. Do you know how to play field hockey? Yes ______ No ______
32. Do you like to play field hockey? Don't know how ______ Yes ______ No ______
33. Do you know how to ski? Yes ______ No ______
34. Do you like to ski? Don't know how ______ Yes ______ No ______
35. What other sports do you like? ______

IV. Hobbies

36. Do you play a musical instrument? Yes ______ No ______
 a. What instrument? ______
37. Have you a stamp collection? Yes ______ No ______
38. Do you collect pictures? Yes ______ No ______
 a. Of what? ______
39. Have you a scrapbook? Yes ______ No ______
 A. What do you put in your scrapbook? ______
40. What other things do you collect? ______
41. Do you ever draw or paint in your spare time? Yes ______ No ______
 a. What do you like to draw or paint? ______
42. Do you like to sew? Yes ______ No ______
 a. What have you made? ______
43. Do you like to work with tools? Yes ______ No ______
 a. What have you made? ______
44. Do you like to listen to the radio? Yes ______ No ______
 a. What type of program do you like best? ______
45. Are you a Scout? Yes ______ No ______
46. To what other organizations do you belong? ______
47. What things do you like best to do in your spare time? ______
48. What things do you like best to do in your vacations? ______
49. Have you ever been to a boys' or girls' camp? Yes ______ No ______

V. PETS

50. Is there a dog in your home? Yes______ No______
 a. Do you have any duties in caring for it? Yes______ No______
 b. What duties?______

51. Is there a cat in your home? Yes______ No______
 a. Do you have any duties in caring for it? Yes______ No______
 b. What duties?______

52. Have you ever owned rabbits? Yes______ No______
53. Have you ever owned guinea pigs? Yes______ No______
54. What other pets have you had?______

55. Have you ever raised any pets? Yes______ No______
 a. What did you raise?______
56. Did you ever sell any pets? Yes______ No______
 a. What did you sell?______
 b. For how much did you sell them?______
 c. Did you make or lose money?______
57. What is your favorite pet?______

VI. TRAVEL

58. The farthest automobile trip you have ever taken was:
 from______ to______
59. The farthest train trip you have ever taken was:
 from______ to______
60. The farthest boat trip you have ever taken was:
 from______ to______
61. The farthest bus trip you have ever taken was:
 from______ to______
62. The farthest airplane trip you have ever taken was:
 from______ to______
63. What is the farthest place you have been from where you now live?______
 a. About how many miles away is this?______

VII. OCCUPATIONS

64. Do you live on a farm? Yes______ No______
 a. If not, have you ever visited a farm? Yes______ No______
65. Have you ever been through a factory? Yes______ No______
66. Have you ever been in a large office building? Yes______ No______
67. Have you ever been in a large department store? Yes______ No______
68. Have you ever been in a bank? Yes______ No______
69. What is the occupation of your father?______

VIII. CLOTHING

70. Are your clothes chosen for you without your help? Yes______ No______
71. Do you help choose your clothes? Yes______ No______
72. Do you choose your clothes without the help of an older person? Yes______ No______
73. Do you go to the store alone to buy your shoes? Yes______ No______
74. Do you ever discuss the prices of your clothing with an older person? Yes______ No______

IX. YOUR HOME

75. How many rooms are in your home? (Do not count hallways, closets, attic, cellar, or bathrooms)______
76. Does your family own its home?______ Yes______ No______
77. Does your family rent its home? Yes______ No______
 a. What is the monthly rent?______
78. Is there a bathroom inside your home? Yes______ No______
 Check the ways in which your home is heated
 a. Soft coal in furnace______ d. Oil in furnace______
 b. Hard coal in furnace______ e. Gas in furnace______

e. Gas in furnace ____
f. Oil stoves in rooms ____
g. Wood stove in kitchen ____
h. Wood stoves in rooms ____
i. Coal stove in kitchen ____
j. Coal stove in rooms ____
k. Any other ways? If so, what? ____

80. If your home is heated by oil, answer the following.
a. What make is the burner? ____
b. Was it bought for cash or on the installment plan? ____
c. How much did it cost? ____

81. Is there an electric or gas refrigerator in your home? Yes ____ No ____
If so,-
a. What make is it? ____
b. Was it bought for cash or on the installment plan? ____
c. How much did it cost? ____

X. YOUR ROOM

82. Check the things below which you have done in your room at home.
a. Chosen the wall paper ____
b. Chosen the color scheme ____
c. Chosen the furniture ____
d. Helped paint ____
e. Chosen the draperies ____
f. Made furniture ____
g. Made draperies ____
h. What else have you done? ____

XI. AUTOMOBILES AND INSURANCE

83. Does your family own an automobile? Yes ____ No ____
a. What kind is it? ____
b. What was the price when bought? ____
c. Was it bought new or used? ____
d. Did they pay cash or was it bought on the installment plan? ____

84. Which of the following kinds of insurance are in your family?
a. Life ____
b. Health ____
c. Accident ____
d. Fire ____
e. Automobile ____

(REMEMBER---IF YOU ARE NOT SURE, LEAVE IT BLANK.)

85. Have you ever used a dial telephone? Yes ____ No ____
86. Have you ever sent a money order? Yes ____ No ____
87. Have you ever sent a package by parcel post? Yes ____ No ____
88. Have you ever used a timetable? Yes ____ No ____
89. Do you know how to read the electric meter? Yes ____ No ____
a. Do you read it regularly? Yes ____ No ____
90. Have you ever ordered anything from a store by telephone? Yes ____ No ____
91. Have you ever ordered anything from a store by a catalog? Yes ____ No ____

questions tests the child's experience in riding and owning a bicycle as well as his knowledge of its cost when new or used and of cash and installment buying.

Part two deals with money, that received from an allowance and that which is earned. The child's experience in buying his own clothes, and in shopping for groceries is tested in this part. Experience in having a savings account, a knowledge of the rate of interest paid, as well as an indication for what the money is being saved are also covered in part two.

Both interest and experience in the field of sports make up part three. Many of the more common activities of children are mentioned in the questionnaire, and the child is given an opportunity to list additional sports which he enjoys.

The fourth part deals with hobbies. Playing a musical instrument, collecting stamps, making a scrapbook, drawing and painting, sewing, and working with tools are hobbies definitely mentioned in the questionnaire. The child is also given an opportunity to designate other things he may like to make or collect. As a further check on the use of leisure time, questions are included which bring forth information on favorite radio programs, membership in organizations, camping experience, and use of spare time and vacation time.

Part five covers experience in owning, selling, and caring for pets. Interest is checked by asking the child to name his favorite pet.

The extent to which a child has traveled is dealt with in

part six. Automobile, train, boat, bus, and airplane travel are all covered. The child is also asked to indicate the farthest place he has been from where he now lives and the distance in miles of this place from his home. This latter question tests his knowledge and appreciation of distance.

The seventh part goes into the field of occupations. The child is asked to designate his experience in living on or visiting a farm, and in making a tour of a factory, office building, department store and bank. To further test a knowledge of occupations, the child is asked the occupation of his father. This may also be used as a check on the type of home environment of the child.

Part eight deals with the child's experience in buying and choosing his own clothing. A question asking whether or not he ever discusses the price of clothing with an older person gives a clue to the child's appreciation of values.

Knowledge of one's home is covered in part nine. The monthly rent, type of fuel used, price of oil burner and iceless refrigerator as well as the names of these, all test the child's knowledge. As a further check on his home environment, there are questions asking for the number of rooms in his home, and whether or not there is a bathroom.

The tenth part is concerned with the experience of the child in improving the appearance of his room at home, choosing wall paper, furniture and draperies, painting and making furniture and draperies are all mentioned. The child is also given an opportunity to signify other things he may have done.

The eleventh part covers experience with automobiles, insurance, and business helps. Knowledge of the price of new and second-hand automobiles is tested, also cash and installment plans of buying. Five types of insurance are mentioned as well as experience with dial telephones, money orders, parcel post, time-tables, electric meters, telephone orders, and ordering from a catalog.

D. To Whom the Questionnaire Was Given.-- The questionnaire was given to 500 children in grades 6, 7, and 8 of seven towns and cities of Massachusetts. To eliminate any misunderstanding in the interpretation of the data, the names of the communities will not be mentioned in this thesis, but will be referred to as Town A, B, C, etc.

In Town A the questionnaire was given to 21 sixth grade pupils, 94 seventh grade pupils, and 74 eighth grade pupils, making a total of 189. In Town B it was given to 29 seventh grade pupils and 19 eighth grade pupils, making a total of 48. In Town C it was given to 28 sixth grade pupils, in Town D to 53 sixth grade pupils, and in Town E to 45 eighth grade pupils. In Town F it was given to 31 sixth grade pupils, 25 seventh grade pupils, and 24 eighth grade pupils, making a total of 80; and in Town G it was given to 20 sixth grade pupils, 9 seventh grade pupils, and 28 eighth grade pupils, making a total of 57.

E. Types of Homes Represented by Subjects.-- Towns A, B, C, and D are mill towns. Many of the children come from homes of very limited means where the incomes are dependent upon mill wages.

Town E is a business and residential town, although the group of children used in this study were from the foreign section of the city, coming from homes of rather limited incomes. Town F is a fishing village which also has a few farms and cranberry bogs. Town G is a farming and residential town where the homes have either many advantages or very limited advantages, there being no middle class. Thus we see that the subjects used in this study are from a variety of types of homes, yet represent the average American home.

After having given the test and collected the data, the next step was to organize and summarize the data gathered.

TABLE 2

TO WHOM THE QUESTIONNAIRE WAS GIVEN

Town	Grade	Boys	Girls	Total	
A	6	8	13	21	
	7	50	44	94	
	8	42	32	74	
					189
B	7	18	11	29	
	8	9	10	19	
					48
C	6	15	13	28	28
D	6	23	30	53	53
E	8	28	17	45	45
F	6	20	11	31	
	7	11	14	25	
	8	14	10	24	
					80
G	6	10	10	20	
	7	3	6	9	
	8	13	15	28	
					57
					500

CHAPTER III

THE DATA AND ITS INTERPRETATION

A. Method of Statistical Treatment.-- Due to the make-up of the questionnaire, several different methods of handling the data were necessary. Some questions were answered by "yes" or "no", others called for checking certain items, while others gave the child the opportunity to express himself in his own words. For each of these types a different method of statistical treatment was necessary. The eleven sections of the questionnaire were handled individually, each response being recorded on a summary table separated as to towns, grades, boys and girls. The data of the grade totals was then changed to percents and recorded first on a single graph comparing all three grades, then in descending bar graphs for each grade. Additional detailed information which could not be put on the graphs was recorded on tables. The preceding procedure was followed for each part of the questionnaire. Individual towns were not graphed since the study was concerned mainly with grade totals. Finally, the separate graphs were combined into summary graphs of descending bars for each grade.

B. The Significant Standard.-- Since the purpose of this thesis is to discover a method of finding pupils' interests and experiences as a basis for informational problem-solving units in arithmetic, it might be well asked what percent of the class should have an interest or have experienced a certain situation before it should be used as a basis for a problem unit. The author presents no

definite answer to this question but rather suggest that more study is needed on this point. Three different standards have been used in this study, one at 50%, another at 65% and a third at 75%. At best they merely serve as a guide and not any one should be taken as the author's recommendation. It might even be argued that a situation in which a grade has had practically no experience, yet is closely associated with adult life should be used in a problem unit.

C. Data on Bicycles.-- Table 3 gives in detail all the information on bicycles received through the questionnaire. From this table additional graphs and tables were made thus placing the data in more usable form.

Graph 1 compares the knowledge and experience with bicycles of the pupils in grades 6, 7 and 8. In three cases the percents advance each year, apparently showing an increase in experience with the increase in years. In grade 6, 81% were able to ride a bicycle, in grade 7, 85%, and in grade 8, 86%. In grade 6, 3% paid for their bicycles in installments, in grade 7, 7%, and in grade 8, 8%. In grade 6, 3% had sold a bicycle, 8% in grade 7, and 11% in grade 8. The experience of paying for one's own bicycle showed an increase from 8% in grade 6 to 14% in grades 7 and 8. The three remaining experiences checked showed no such increase. 37% of grade 6 own a bicycle, 50% of grade 7 and 44% of grade 8. This decrease is also apparent when 24% of grade 6 received bicycles as gifts, 27% of grade 7, and 20% of grade 8. Again, 24% of grade 6 paid for their bicycles in cash, 29% of grade 7, and 28% of grade 8. Other factors than chronological age and development apparently influenced the above items

and caused the decrease in percent with increasing grade.

Graph 2 is a descending bar graph showing the knowledge and experience of pupils in grade 6 with bicycles. The standards of 75%, 65%, and 50% are marked, and it is readily seen that the fact that 83% of the pupils tested in the sixth grades were able to ride bicycles is the only experience measuring up to any one of the three standards.

Graph 3 is also a descending bar graph showing the knowledge and experience of pupils in grade 7 with bicycles. Two items in this graph reach a standard. Here, 85% are able to ride bicycles, and 50% own a bicycle.

Graph 4, a descending bar graph, shows the knowledge and experience of pupils in grade 8 with bicycles. Again, only one item reaches the standard, 87% of the pupils being able to ride a bicycle.

Tables 4, 5, 6 and 7 give additional information on the experience of pupils in buying and selling bicycles. A study of these tables should assist the teacher in making her approach to an informational problem-solving unit based on bicycles.

TABLE 3 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS WITH BICYCLES

A. Experiences with bicycles	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Able to ride a bicycle.	6	10	16	14	8	22	20	21	41	19	10	29	10	6	16	124 81%	47	30	77	17	7	24	11	13	24	3	6	9	134 85%	41	27	68	8	7	15	25	7	32	14	8	22	12	14	26	163 86%	421 84%
2. Own a bicycle.	2	1	3	8	3	11	7	7	14	13	4	17	8	3	11	56 37%	30	15	45	10	4	14	5	7	12	3	4	7	78 50%	26	8	34	6	4	10	10	1	11	12	2	14	7	8	15	84 44%	218 44%
3. Received bicycle as gift.	2	0	2	5	3	8	3	7	10	7	3	10	5	2	7	37 24%	14	10	24	4	4	8	3	2	5	2	4	6	43 27%	9	3	12	1	2	3	7	1	8	6	2	8	1	6	7	38 20%	118 24%
4. Paid for bicycle in installments.							3	1	4	0	1	1				5 3%	7	0	7	3	0	3				0	1	1	11 7%	6	3	9	2	2	4	1	0	1	2	0	2				16 8%	32 6%
5. Paid cash for bicycle.	2	1	3	7	0	7	4	4	8	10	3	13	3	2	5	36 24%	14	10	24	6	3	9	4	3	7	2	3	5	45 29%	17	5	22	3	1	4	8	1	9	6	2	8	6	5	11	54 28%	135 27%
6. Paid for own bicycle.				4	0	4	2	1	3	2	1	3	1	1	2	12 8%	11	4	15	3	1	4	2	0	2	1	0	1	22 14%	10	0	10	1	0	1	5	0	5	4	0	4	6	1	7	27 14%	61 12%
7. Have sold a bicycle.				2	0	2	1	0	1	2	0	2				5 3%	7	0	7	1	1	2	3	0	3				12 8%	9	1	10	1	0	1	5	0	5	0	2	2	3	0	3	21 11%	38 8%
Total Pupils in Study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

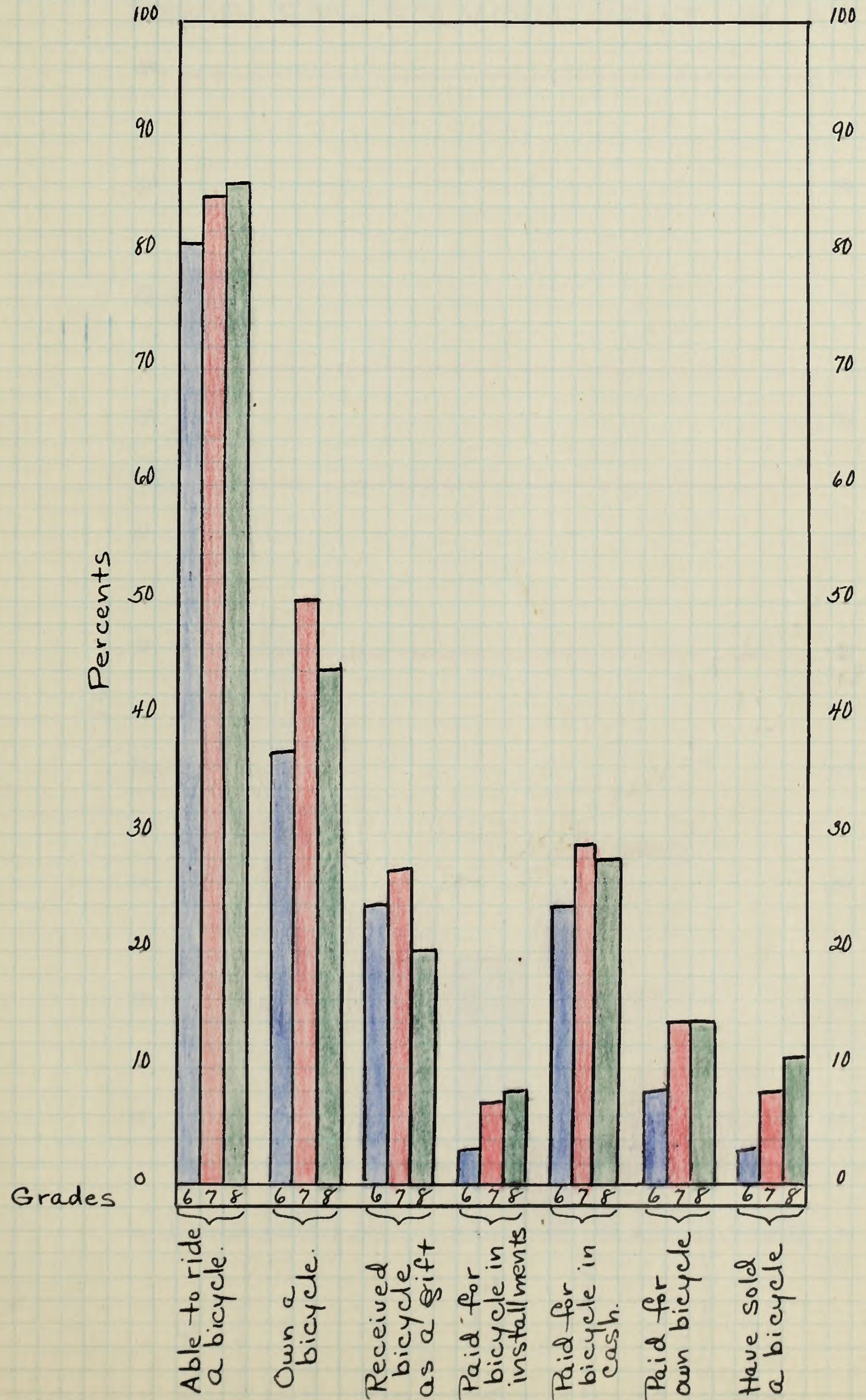
B. How money was earned to buy bicycles	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Helping parents				2	0	2										2	2	1	3	1	0	1							4	1	0	1										0	1	1	2	6
2. Christmas club				1	0	1										1																														1
3. Picking chickens				1	0	1										1																														1
4. Selling papers							1	0	1							1	4	0	4										4	1	0	1				1	0	1	1	0	1				3	8
5. Mowing lawns							1	0	1							1														1	0	1										1	0	1	2	3
6. Selling Christmas cards							0	1	1							1																	1	0	1							1	0	1	2	3
7. Selling magazines										1	0	1				1	4	0	4										4																	5
8. Doing odd jobs										1	0	1	1	0	1	2	2	0	2				1	0	1				3	2	0	2				1	0	1	1	0	1	2	0	2	6	11
9. Digging quahogs										0	1	1				1																														1
10. Working in a store																	1	0	1										1																	1
11. Caddying																	1	0	1										1	2	0	2													2	3
12. Selling junk																	4	0	4										4																	4
13. Working on a milk truck.																	1	0	1										1																	1
14. Working for grandmother																	1	0	1										1																	1
15. Caring for children																	0	1	1										1	0	1	1													1	2
16. Working in a barn																				1	0	1							1																	1
17. Playing in an orchestra																				1	0	1							1																	1
18. Receiving a good report card																				0	1	1							1																	1
19. Working on a farm																							1	0	1				1	2	0	2										1	0	1	3	4
20. Working in a woodworking shop.																														1	0	1													1	1
21. Raising chickens.																														1	0	1	1	0	1										2	2
22. Shoveling snow																														1	0	1													1	1
23. Developing films																																				1	0	1							1	1
24. Shining shoes																																				1	0	1							1	1
25. Selling a sailboat																																							1	0	1				1	1
26. Gardening																										1	0	1	1													1	0	1	1	2
27. Picking strawberries																																										1	0	1	1	1
28. Raising guinea pigs																																										1	0	1	1	1
No response													0	1	1	1																														1
Total pupils earning money to buy bicycles.				4	0	4	2	1	3	2	1	3	1	1	2	12 8%	11	4	15	3	1	4	2	0	2	1	0	1	22 14%	10	0	10	1	0	1	5	0	5	4	0	4	6	1	7	27 14%	61 12%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. The price of bicycles owned.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
\$45–\$49																														1	0	1													1	1
40–44	1	0	1													1										0	1	1	1							1	0	1							1	3
35–39				1	0	1	2	1	3							4				1	0	1	2	0	2	0	1	1	4	1	1	2	1	0	1	2	0	2	2	0	2	0	1	1	8	16
30–34													1	0	1	1	4	2	6	2	1	3	1	0	1	0	1	1	11	1	2	3	2	2	4	1	1	2	2	0	2	3	1	4	15	27
25–29	1	0	1	1	0	1	1	0	1	2	1	3				6	6	5	11	1	1	2				1	1	2	15	9	0	9	2	0	2	1	0	1	1	0	1	1	1	2	15	36
20–24				1	0	1	1	0	1	2	1	3	1	1	2	7	2	0	2	1	0	1	0	1	1	1	0	1	5	5	2	7				1	0	1	0	1	1	1	1	2	11	23
15–19				2	0	2	0	1	1	1	0	1				4	0	1	1	1	0	1	1	0	1				3										1	0	1	1	0	1	2	9
10–14	1	0	1	1	0	1	1	1	2	4	0	4				8	2	2	4	1	0	1	1	2	3	1	0	1	9	2	0	2				1	0	1	3	0	3				6	23
5–9				1	0	1	1	0	1	1	1	2				4	3	0	3	1	0	1							4							1	0	1				1	0	1	2	10
0–4										1	1	2				2	1	0	1										1	3	0	3	0	1	1	2	0	2	0	1	1				7	10
No response	0	1	1	0	3	3	1	4	5	2	0	2	6	2	8	19	12	5	17	2	2	4	0	4	4				25	4	3	7	1	1	2				3	0	3	0	4	4	16	60
Totals	3	1	4	7	3	10	7	7	14	13	4	17	8	3	11	56 37%	30	15	45	10	4	14	5	7	12	3	4	7	78 50%	26	8	34	6	4	10	10	1	11	12	2	14	7	8	15	84 44%	218 44%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

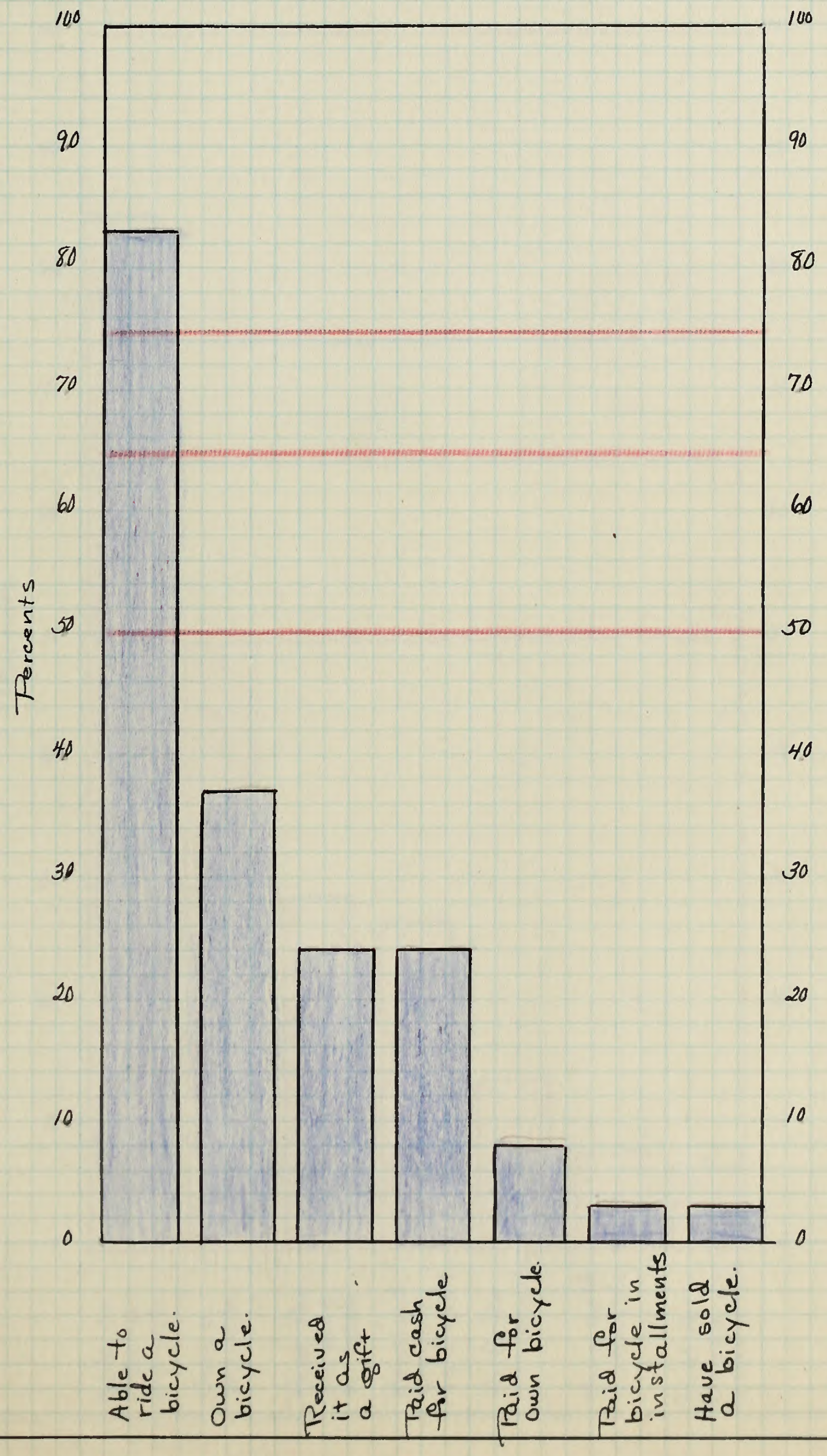
D. Reasons why bicycles were sold.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. It had a broken fork.				1	0	1										1																														1
2. I had no use for it.				1	0	1										1	1	0	1										1										0	1	1				1	3
3. It was old.							1	0	1							1							1	0	1				1																	2
4. It was too small										1	0	1				1														2	1	3													3	4
5. I got another one.																	4	0	4	1	1	2							6	2	0	2				1	0	1	0	1	1	2	0	2	6	12
6. It was broken.																	2	0	2				2	0	2				4	3	0	3				1	0	1				1	0	1	5	9
7. To get money for a new one.																																	1	0	1	1	0	1							2	2
8. Parents didn't approve of it.																																				2	0	2							2	2
No response										1	0	1				1														2	0	2													2	3
Total pupils selling bicycles				2	0	2	1	0	1	2	0	2				5 3%	7	0	7	1	1	2	3	0	3				12 8%	9	1	10	1	0	1	5	0	5	0	2	2	3	0	3	21 11%	38 8%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

E. Price for which bicycles were sold.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
\$15–19																				1	0	1							1																	1
10–14										1	0	1				1				0	1	1	1	0	1				2																	3
5–9				1	0	1										1	2	0	2										2	1	1	2	1	0	1	3	0	3	0	1	1	2	0	2	9	12
0–4				1	0	1				1	0	1				2	5	0	5				1	0	1				6	5	0	5				2	0	2	0	1	1	1	0	1	9	17
No response							1	0	1							1							1	0	1				1	3	0	3													3	5
Total pupils selling bicycles				2	0	2	1	0	1	2	0	2				5 3%	7	0	7	1	1	2	3	0	3				12 8%	9	1	10	1	0	1	5	0	5	0	2	2	3	0	3	21 11%	38 8%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

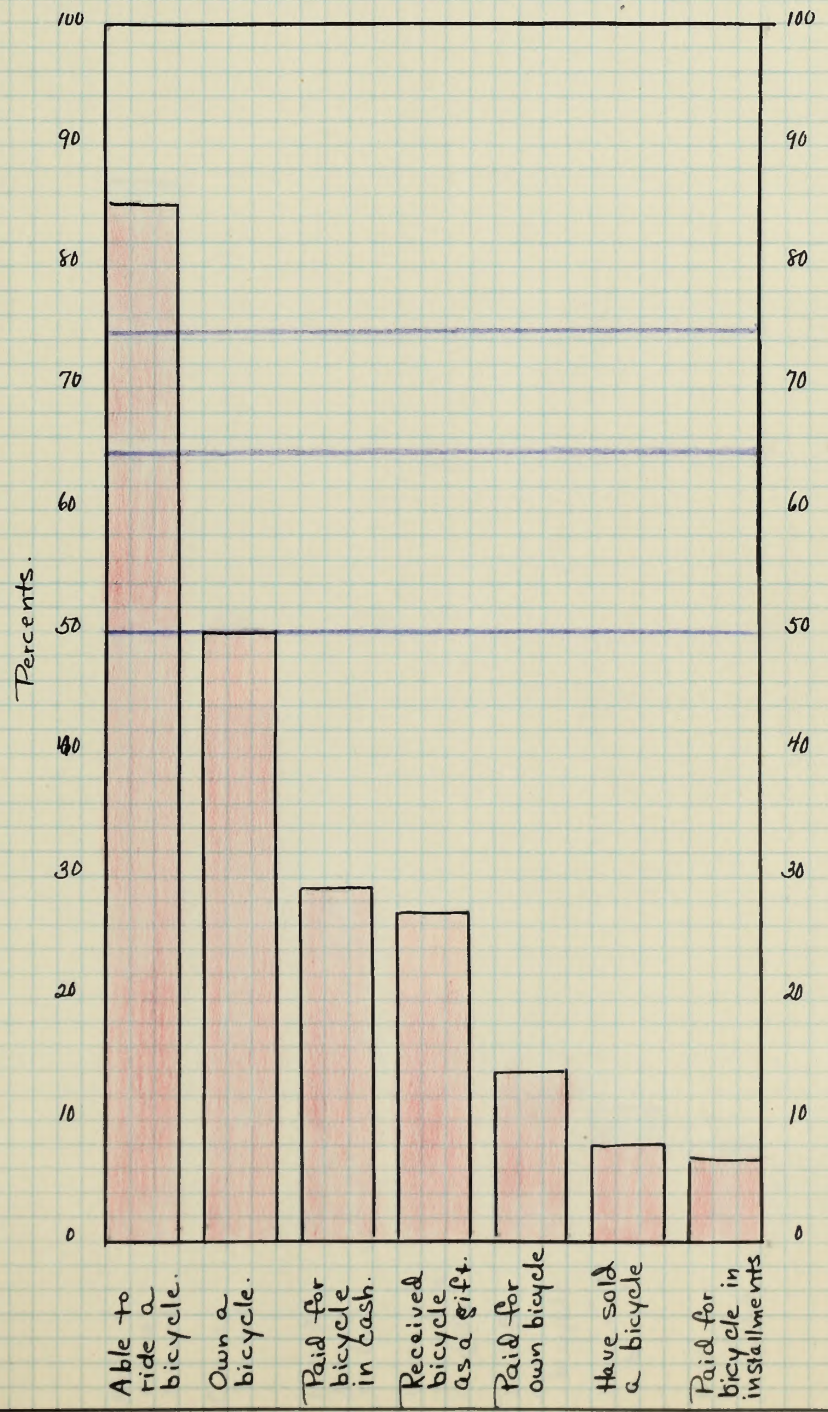
GRAPH I - SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING A KNOWLEDGE OF AND EXPERIENCE WITH BICYCLES.



GRAPH 2 - SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH BICYCLES OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 3 - SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH BICYCLES OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 4 - SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH BICYCLES OF PUPILS IN GRADE 8 - WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

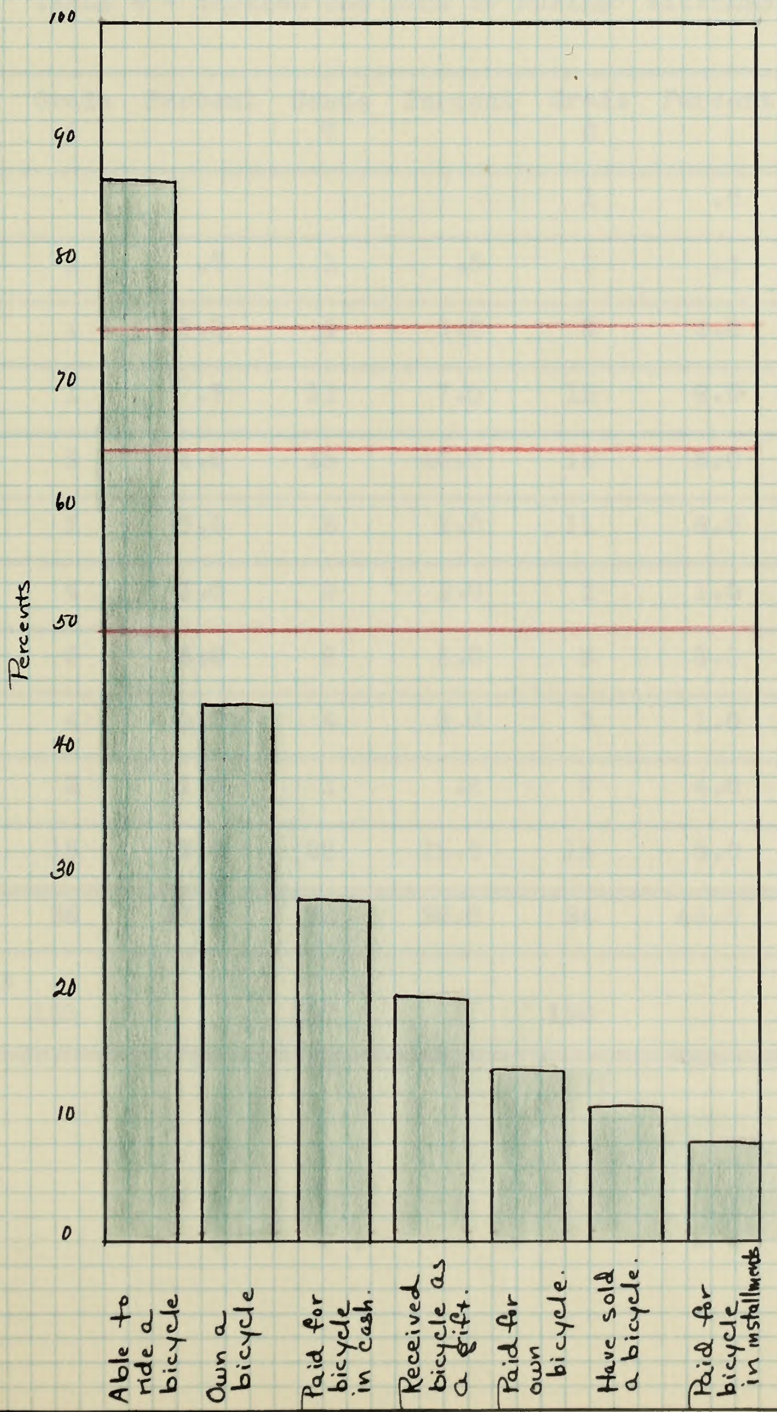


TABLE 4 - SHOWING THE COST OF PUPILS' BICYCLES

Cost of bicycle	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
$45 - $49					1	.5	1	.2
40 - 44	1	.7	1	.6	1	.5	1	.2
35 - 39	4	3.0	4	3.0	8	4.0	16	3.0
30 - 34	1	.7	11	7.0	15	8.0	27	5.0
25 - 29	6	4.0	15	10.0	15	8.0	36	7.0
20 - 24	7	5.0	5	3.0	11	6.0	23	5.0
15 - 19	4	3.0	3	2.0	2	1.0	9	2.0
10 - 14	8	5.0	9	6.0	6	3.0	23	5.0
5 - 9	4	3.0	4	3.0	2	1.0	10	2.0
0 - 4	2	1.0	1	.6	7	4.0	10	2.0
No response	19	12.0	25	15.0	16	8.0	60	12.0
Totals	56	37.0	78	50.0	84	44.0	218	44.0
Total pupils in study	153		157		190		500	

TABLE 5 - SHOWING THE PRICE AT WHICH PUPILS' BICYCLES WERE SOLD

Selling price of bicycle	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
$15 -$19								
10 - 14	1	.7	2	1.0			3	.6
5 - 9	1	.7	2	1.0	9	5.0	12	2.0
0 - 4	2	1.0	6	4.0	9	5.0	17	3.0
No response	1	.7	1	.6	3	2.0	5	1.0
Total	5	3.0	12	8.0	21	11.0	38	8.0
Total pupils in study	153		157		190		500	

TABLE 6 - SHOWING THE METHODS USED BY PUPILS IN EARNING MONEY TO BUY BICYCLES

Grade	No. of pupils in grade	No. of pupils buying own bicycle	Percent of total	No. of methods used	Methods most frequently used	No. of pupils using these methods	Percent of those buying bicycles
6	153	12	8	9	Helping parents.	2	17
					Doing odd jobs.	2	17
7	157	22	14	15	Helping parents.	4	18
					Selling papers.	4	18
					Selling magazines.	4	18
					Selling junk.	4	18
8	190	6	3	17	Doing odd jobs.	6	100
					Selling papers.	3	50
					Working on a farm.	3	50
Total	500	40	8	28	Doing odd jobs.	11	28
					Selling papers.	8	20
					Helping parents.	6	15

TABLE 7 - SHOWING THE REASONS WHY PUPILS SOLD BICYCLES

Grade	No. of pupils in grade	No. of pupils selling bicycles	Percent of total	No. of reasons given	Reasons most frequently given	No. of pupils giving these reasons	Percent of those selling bicycles
6	153	5	3	4	It had a broken fork.	1	20
					I had no use for it.	1	20
					It was old.	1	20
					It was too small.	1	20
7	157	12	8	4	I got another one.	6	50
					It was broken.	4	33
8	190	21	11	6	I got another one.	6	29
					It was broken.	5	24
					It was too small.	3	14
Total	500	38	8	8	I got another one.	12	32
					It was broken.	9	24
					It was too small.	4	11

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D. Data on Money.-- Table 8 gives a summary of all the responses on the question of money.

Graph 5 compares the three grades in certain knowledge and experiences with money. In only three of the nine items, however, do the percents increase each year. In grade 6, .6% knew the rate of interest they receive at the savings bank, 4% in grade 7, and 16% in grade 8. 55% of the pupils in grade 6 pay cash for groceries, 58% in grade 7 and 67% in grade 8. In grade 6, 65% go to the store to shop for groceries, 66% in grade 7, and 78% in grade 8. The other items do not show this gradual increase for each grade. 49% of the pupils in grade 6 receive an allowance, 53% in grade 7, and only 47% in grade 8. On the question of buying clothes with one's allowance, the percents decrease from 14% in grade 6, to 8% in grade 7 and 7% in grade 8. 83% of the sixth grade pupils work to earn money, while in grade 7 and 8, 83% work to earn money. In grade 6, 29% buy their own clothes with the money earned, 24% in grade 7, and 36% in grade 8. Again, on the item of having a savings account the percents vary from 50% in grade 6, to 43% in grade 7 and 53% in grade 8. Another variation is seen in the experience of charging the cost of groceries at the store. 27% of the sixth grade pupils have had this experience, 23% of the seventh grade, and 31% of the eighth grade.

Graph 6 is a descending bar graph showing the knowledge and experience with money of pupils in grade six with the three different standards. Of the nine items in the questionnaire, four of them measure up to a standard. 83% work to earn money, 65% go to the store to shop for groceries, 55% pay cash for groceries, and 50% have a savings account.

Graph 7 shows the money knowledge and experience of the seventh grade arranged in a descending bar graph with the three standards. As in the sixth grade, only four items reach a standard, though oddly enough they are not the same four items. 85% of the pupils of this grade work to earn money, 66% go to the store to shop for groceries, 58% pay cash for groceries, and 53% receive an allowance.

Graph 8, with its descending bars, shows the money knowledge and experience of the eighth grade. Again, only four items reach a standard, but in this case happen to be the same items as the sixth grade, though with different percents. 85% work to earn money, 78% go to the store to shop for groceries, 67% pay cash for groceries, and 53% have a savings account.

Tables 9, 10, 11, 12 and 13 give more detailed information concerning the items in the graphs.

TABLE 8 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS WITH MONEY.

A. Experiences with and knowledge of money.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Receive an allowance.	3	4	7	6	10	16	12	19	31	8	4	12	4	4	8	74 49%	19	28	47	10	6	16	7	2	9	3	6	9	81 51%	19	12	31	7	4	11	14	12	26	6	4	10	5	6	11	89 47%	244 49%
2. Buy clothes with allowance.	1	1	2	4	2	6	5	5	10	0	3	3	0	1	1	22 14%	3	4	7	1	1	2	2	0	2	1	1	2	13 8%	7	0	7	1	1	2	0	2	2	1	0	1	2	0	2	14 7%	49 10%
3. Work to earn money.	8	10	18	14	11	25	22	20	42	17	8	25	10	7	17	127 83%	47	36	83	17	8	25	9	11	20	3	3	6	134 85%	40	26	66	7	9	16	26	12	38	9	7	16	13	12	25	161 85%	422 84%
4. Buy clothes with money earned.	4	3	7	8	5	13	8	5	13	5	4	9	1	2	3	45 29%	18	7	25	4	2	6	3	3	6	0	1	1	38 24%	23	10	33	3	2	5	7	3	10	6	3	9	8	3	11	68 36%	151 30%
5. Have a savings account.	2	3	5	10	6	16	6	14	20	16	8	24	6	5	11	76 50%	21	17	38	7	5	12	4	6	10	2	6	8	68 43%	20	12	32	2	4	6	19	10	29	9	4	13	8	12	20	100 53%	244 49%
6. Know the rate of interest received.										0	1	1				1 .65%	3	1	4				0	3	3				7 4%	14	5	19	1	0	1	6	1	7	1	1	2	0	1	1	30 16%	38 8%
7. Pay cash for groceries	4	5	9	14	10	24	15	16	31	8	6	14	4	2	6	84 55%	34	26	60	10	7	17	3	5	8	1	5	6	91 58%	27	27	54	2	6	8	26	16	42	5	3	8	8	8	16	128 67%	303 61%
8. Charge cost of groceries.	1	3	4	0	5	5	5	10	15	7	6	13	2	1	3	40 27%	8	8	16	9	3	12	4	2	6	1	1	2	36 23%	9	4	13	2	4	6	18	10	28	3	2	5	4	3	7	59 31%	135 27%
9. Go to store to shop for groceries.	6	6	12	15	11	26	15	15	30	15	7	22	7	3	10	100 65%	36	30	66	16	7	23	4	5	9	1	5	6	104 66%	34	27	61	4	9	13	28	17	45	6	3	9	11	10	21	149 78%	353 71%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. The amount of allowance received.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
$3.50 - $3.74																	1	0	1										1																	1
3.25 - 3.49																																														
3.00 - 3.24																																										0	1	1	1	1
2.75 - 2.99																																														
2.50 - 2.74																	0	1	1										1																	1
2.25 - 2.49																																														
2.00 - 2.24																				1	0	1							1							1	0	1							1	2
1.75 - 1.99																																														
1.50 - 1.74																										0	1	1	1	2	0	2				1	0	1							3	4
1.25 - 1.49				1	0	1				1	0	1				2														0	1	1													1	3
1.00 - 1.24	0	1	1	1	0	1	0	2	2							4	0	2	2	1	0	1				0	1	1	4	0	3	3							1	0	1				4	12
.75 - .99																														0	1	1				1	1	2				0	1	1	4	4
.50 - .74	2	1	3	0	1	1	4	3	7	1	1	2	1	0	1	14	4	1	5	3	2	5	1	0	1				11	6	4	10	1	1	2	4	8	12	1	2	3	1	2	3	30	55
.25 - .49	1	1	2	1	4	5	2	5	7	4	2	6	1	1	2	22	8	7	15	3	3	6	1	1	2	2	2	4	27	8	10	18	5	2	7	7	2	9	3	0	3	4	1	5	42	91
0 - .24	0	1	1	1	5	6	6	9	15	1	1	2	2	3	5	29	4	0	4	1	1	2	5	1	6	1	2	3	15	3	8	11	1	1	2	0	1	1	1	2	3	0	1	1	18	62
No response				2	0	2				1	0	1				3	2	1	3	1	0	1							4	0	1	1													1	8
Total pupils receiving an allowance	3	4	7	6	10	16	12	19	31	8	4	12	4	4	8	74 49%	19	12	31	10	6	16	7	2	9	3	6	9	65 41%	19	28	47	7	4	11	14	12	26	6	4	10	5	6	11	105 55%	244 49%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. Things for which allowance is spent besides clothes.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Necessary supplies	2	0	2	0	2	2							1	0	1	5	0	3	3	2	2	4							7	0	2	2	0	1	1	0	1	1							4	16
2. Tools	1	0	1													1																														1
3. Small items	1	1	2													2	2	0	2	2	1	3							5				0	1	1	3	1	4							5	12
4. Candy	0	1	1	1	2	3	2	3	5	3	1	4	0	2	2	15	4	3	7	2	2	4	1	0	1	0	1	1	13	6	2	8	3	2	5	7	3	10	2	2	4	0	1	1	28	56
5. Ice-cream	0	1	1				0	1	1	1	0	1	0	1	1	4							1	0	1				1	3	1	4	0	1	1										5	10
6. Gifts	0	2	2	1	2	3	1	3	4	1	1	2				11	2	0	2	1	1	2	1	0	1	1	1	2	7	0	3	3	1	1	2	0	1	1	1	2	3				9	27
7. School milk	0	1	1													1	1	0	1										1	1	0	1													1	3
8. Movies				2	2	4	6	7	13	0	1	1	1	0	1	19	3	8	11	3	0	3				0	4	4	18	8	6	14	3	0	3	9	7	16	2	0	2	2	2	4	39	76
9. Airplane models				1	0	1										1																							1	0	1				1	2
10. Shoes				1	0	1										1																														1
11. Rubbers				1	0	1										1																														1
12. Stockings				1	0	1										1							0	1	1				1							0	1	1							1	3
13. Haircuts				0	1	1										1														1	0	1													1	2
14. Lead soldiers							1	0	1							1																														1
15. Christmas club							0	1	1							1																														1
16. Toys							0	1	1	2	0	2				3	1	0	1	2	0	2	1	0	1				4																	7
17. Entertainment							0	1	1	1	0	1				2	5	10	15							0	2	2	17	4	0	4	1	0	1	2	4	6	2	1	3	2	3	5	19	38
18. Books							0	1	1	0	1	1	0	2	2	4	0	1	1	1	0	1	1	0	1	0	1	1	4	1	1	2	1	0	1				0	1	1				4	12
19. Dancing school							0	2	2							2	0	1	1										1																	3
20. Church							0	1	1							1	1	3	4										4													0	1	1	1	6
21. Dues							0	1	1							1	2	6	8				1	0	1	0	1	1	10	3	0	3	2	2	4	5	2	7				0	1	1	12	23
22. Bicycle equipment													1	0	1	1	1	0	1										1				1	0	1										1	3
23. Magazines													0	1	1	1	0	1	1										1	1	0	1													1	3
24. Sport equipment																	1	0	1										1																	1
25. Movie slides																	1	0	1										1																	1
26. Music lessons																														0	1	1				3	0	3							4	4
27. Stamps																										1	0	1	1										1	0	1				1	2
28. Hobbies																										1	0	1	1	1	0	1				2	0	2							3	4
29. B. B's for gun													1	0	1	1																														1
30. Manual training projects																														1	0	1													1	1
31. Games																	1	0	1										1	1	0	1	1	0	1										2	3
32. Camp																	0	2	2										2																	2
33. Carfare																																				1	0	1							1	1
34. Paying for an instrument																																				1	0	1							1	1
35. Chemicals																																							1	0	1				1	1
36. Papers																																							0	1	1				1	1
No response	1	2	3	2	5	7	13	17	30	4	2	6	2	2	4	50	7	3	10	1	1	2	3	0	3				15	2	3	5				1	2	3	1	1	2	2	0	2	12	77
Total pupils receiving an allowance	3	4	7	6	10	16	12	19	31	8	4	12	4	4	8	74 49%	19	12	31	10	6	16	7	2	9	3	6	9	65 41%	19	28	47	7	4	11	14	12	26	6	4	10	5	6	11	105 55%	244 49%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

D. Ways in which money is earned.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Running errands	6	8	14	14	11	25	13	17	30	16	9	25	6	2	8	102	34	24	58	9	5	14	8	9	17	1	2	3	92	18	15	33	4	7	11	18	6	24	8	5	13	7	3	10	91	285
2. Selling papers and magazines	1	0	1	7	0	7	8	0	8	6	4	10				26	12	1	13	3	0	3	3	0	3				19	13	0	13	1	0	1	15	0	15	4	1	5	2	0	2	36	81
3. Working around the home.	5	8	13	11	8	19	19	23	42	16	9	25	7	6	13	112	33	25	58	11	8	19	7	9	16	3	4	7	100	26	18	44	4	7	11	11	6	17	5	6	11	12	8	20	103	315
4. Caring for children	3	8	11	4	4	8	5	15	20	6	7	13	1	4	5	57	5	17	22	1	2	3	1	6	7				32	8	23	31	0	4	4	10	9	19	2	4	6	1	5	6	66	155
5. Shoveling snow.	7	0	7	10	1	11	17	6	23	13	4	17	6	1	7	65	30	4	34	9	0	9	4	1	5	1	1	2	50	26	0	26	6	0	6	14	0	14	4	1	5	8	2	10	61	176
6. Cutting grass	5	3	8	7	3	10	13	4	17	13	6	19	6	1	7	61	27	5	32	10	0	10	7	0	7	2	1	3	52	23	1	24	6	0	6	10	0	10	8	1	9	9	1	10	59	172
7. Working at a roadside stand	1	0	1	3	1	4	1	1	2	2	1	3				10	3	0	3	1	0	1	1	0	1				5	8	1	9	0	1	1							4	0	4	14	29
8. Selling berries.				0	1	1										1	1	1	2										2	2	0	2													2	5
9. Working in a store.										0	1	1				1	2	0	2										2	1	1	2							2	0	2				4	7
10. Picking berries.	1	0	1							0	1	1				2	1	0	1	1	0	1	1	0	1				3	0	1	1													1	6
11. Chopping wood				0	1	1										1	2	0	2										2																	3
12. Cleaning cars.							1	1	2							2	1	0	1				1	0	1				2							1	0	1							1	5
13. Working in a greenhouse	1	0	1													1	1	0	1										1																	2
14. Helping grandparents																	1	0	1	1	0	1							2																	2
15. Taking out ashes																	1	0	1										1																	1
16. Caddying							1	0	1							1	3	0	3										3	6	0	6													6	10
17. Selling salve													1	0	1	1	1	0	1										1																	2
18. Receiving a good report card.																	1	0	1										1																	1
19. Selling junk																	1	1	2										2																	2
20. Emptying rubbish																	1	0	1										1																	1
21. Working at the movies																	1	0	1										1	1	0	1													1	2
22. Having an egg route																	1	0	1										1																	1
23. Selling candy																	1	0	1										1	0	1	1				1	0	1							2	3
24. Gardening				1	1	2										2	3	0	3				1	0	1				4													2	0	2	2	8
25. Shining shoes																	1	0	1										1	1	0	1				1	0	1				1	0	1	3	4
26. Having a milk route																	2	0	2										2																	2
27. Selling chances																														0	1	1													1	1
28. Doing housework				0	1	1				0	1	1				2							0	1	1				1	0	1	1	0	1	1	0	1	1	0	2	2				5	8
29. Playing in an orchestra																				1	0	1							1							2	0	2							2	3
30. Working in a barn.																				1	0	1							1																	1
31. Working in a lumber camp																				1	0	1							1																	1
32. Helping with father's business.																	0	1	1	1	1	2							3	1	0	1				2	0	2							3	6
33. Carrying mail																							1	0	1				1																	1
34. Showing dogs																														1	0	1													1	1

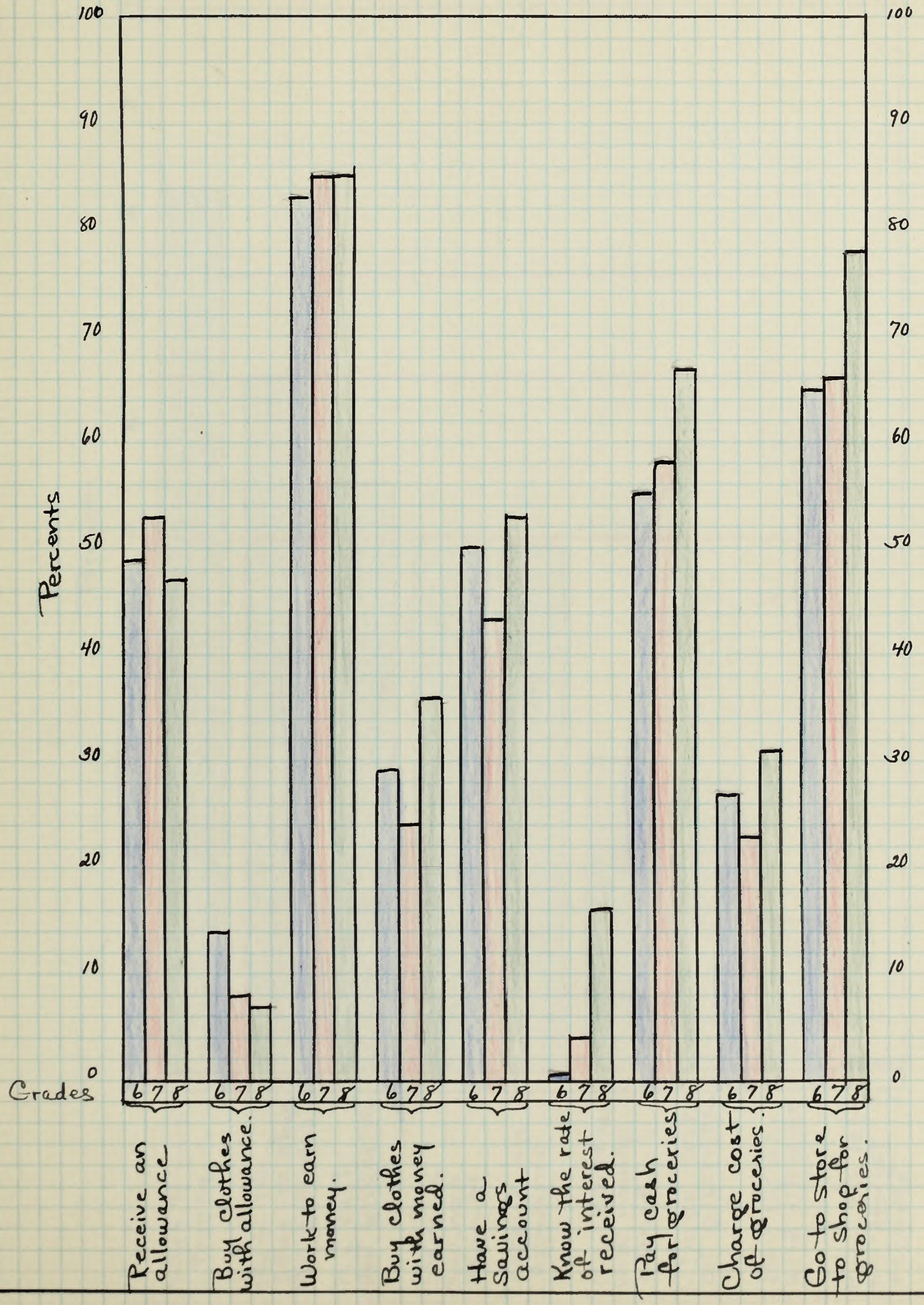
TABLE 8 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS WITH MONEY

D. (continued) Ways in which money is earned	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
35. Raising and selling vegetables																				1	0	1							1																	1
36. Posing for art students																														1	0	1													1	1
37. Delivering papers																														1	0	1													1	1
38. Haying																														1	0	1													1	1
39. Cutting ice																														1	0	1													1	1
40. Digging a cellar																														1	0	1													1	1
41. Picking up rocks																														1	0	1													1	1
42. Selling tonic																														1	0	1													1	1
43. Woodworking																														1	0	1													1	1
44. Farming				1	0	1							1	0	1	2							1	0	1				1	3	0	3	1	0	1				1	0	1	3	0	3	8	11
45. Working at a gas station																														1	0	1													1	1
46. Working at a school																														1	0	1													1	1
47. Helping relatives																														2	0	2													2	2
48. Selling Christmas wreathes				0	1	1	0	1	1							2	0	1	1										1																	3
49. Selling mayonaise																	0	1	1										1																	1
50. Working in a garage																																	1	0	1										1	1
51. Helping neighbors							1	0	1							1																	1	0	1	1	0	1							2	3
52. Singing in a choir.																																				2	0	2							2	2
53. Delivering orders.										1	0	1				1																				3	0	3							3	4
54. Delivering circulars				1	0	1										1																				1	0	1							1	2
55. Photography																																				1	0	1							1	1
56. Cleaning furnaces																																							1	0	1				1	1
57. Taking a dog for a walk.																																							1	0	1				1	1
58. Selling holders																																							0	1	1				1	1
59. Selling flowers																																							0	1	1				1	1
60. Raising animals																																										2	0	2	2	2
61. Raking leaves				1	0	1										1																														1
62. Bookkeeping				0	1	1										1																														1
63. Sawing wood							1	0	1							1																														1
64. Selling Christmas cards							0	1	1							1																														1
65. Going for milk										1	0	1				1																														1
No response				0	1	1										1	0	1	1							0	2	2	3	1	0	1				2	0	2				0	1	1	4	8
Total pupils who work to earn money.	8	10	18	14	11	25	22	20	42	17	8	25	10	7	17	127 83%	47	36	83	17	8	25	9	11	20	3	3	6	134 85%	40	26	66	7	9	16	26	12	38	9	7	16	13	12	25	161 85%	422 84%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

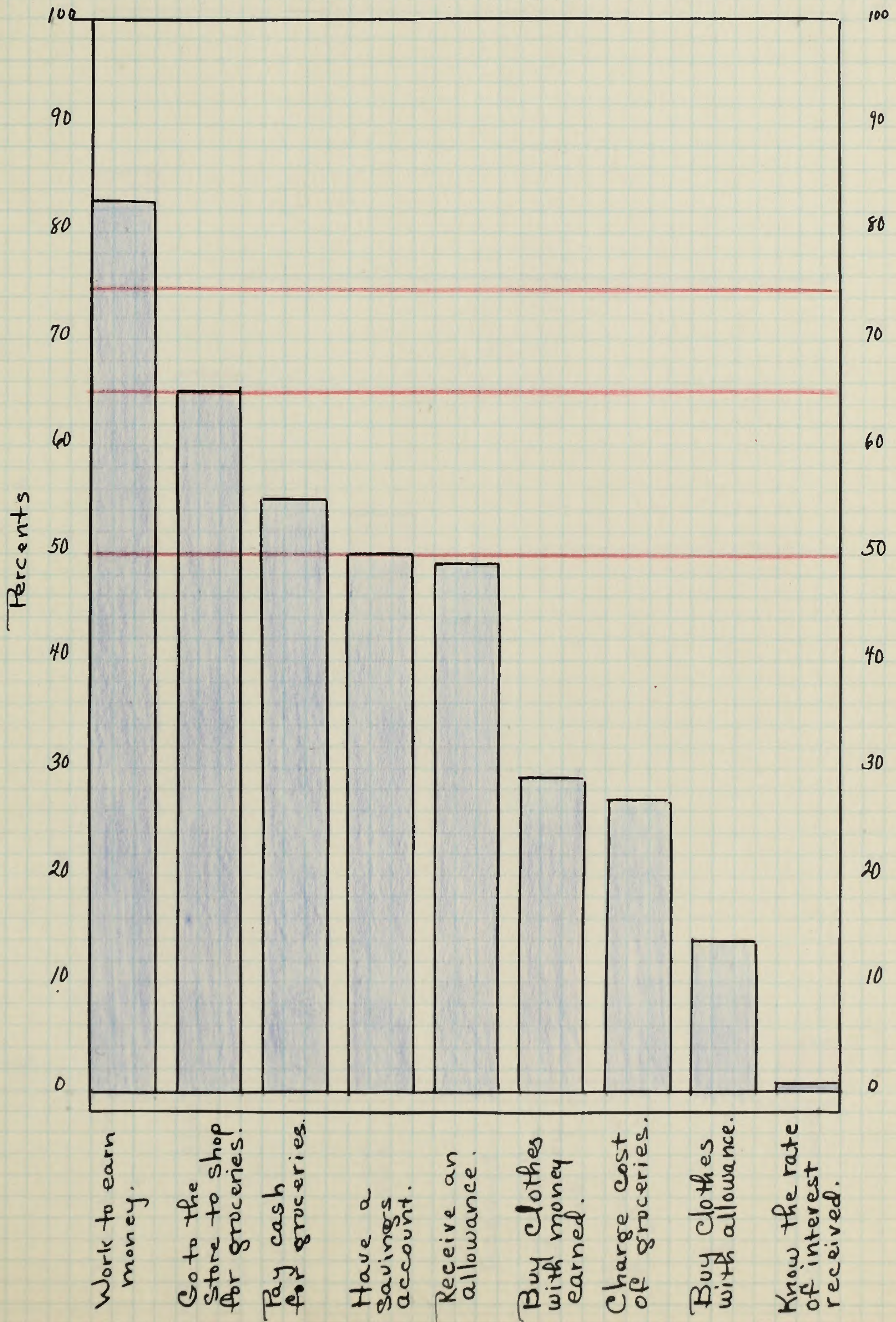
E. How children get money to put in savings bank.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Earn it.	1	3	4	5	0	5	9	9	18	14	4	18	4	2	6	51	8	3	11	5	2	7	2	2	4	2	1	3	25	17	2	19	1	1	2	9	5	14	2	0	2	6	7	13	50	126
2. Gifts				0	2	2	1	3	4	4	3	7	2	1	3	16	7	8	15	3	4	7	1	2	3	0	3	3	28	3	6	9	1	1	2	8	5	13	1	5	6	1	4	5	35	79
3. From allowance.	0	1	1	3	4	7	0	1	1							9	2	4	6				2	2	4				10	2	2	4				5	4	9	2	0	2				15	34
4. Life insurance of Mother.																														0	1	1													1	1
5. Stock dividends.																																										0	1	1	1	1
No response	1	0	1	2	2	4				1	2	3	1	2	3	11	7	5	12				0	2	2	0	2	2	16	1	3	4	0	2	2	1	1	2	6	0	6	2	2	4	18	45
Total pupils having savings account	2	3	5	10	6	16	6	14	20	16	8	24	6	5	11	76 50%	21	17	38	7	5	12	4	6	10	2	6	8	68 43%	20	12	32	2	4	6	19	10	29	9	4	13	8	12	20	100 53%	244 49%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

F. Things for which children are saving money.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Clothes	0	1	1							2	1	3	0	1	1	5	1	1	2				0	1	1	0	1	1	4	1	2	3							0	1	1				4	13
2. Horse													0	1	1	1																														1
3. Dog													0	1	1	1																														1
4. Bicycle	0	2	2				4	3	7	4	1	5	0	1	1	15	2	6	8	2	1	3	2	1	3	0	1	1	15	1	0	1				2	0	2	0	1	1				4	34
5. An automobile										1	0	1				1	1	0	1				1	0	1				2	1	0	1				1	0	1	1	0	1				3	6
6. Future	0	1	1	5	2	7	1	1	2	2	4	6				16	3	2	5	2	3	5	0	3	3	1	1	2	15	7	3	10				6	6	12	2	0	2	1	6	7	31	62
7. Education							0	4	4	1	2	3				7	8	7	15	4	1	5							20	5	3	8	1	1	2	11	4	15	1	1	2	3	1	4	31	58
8. Musical instrument																	1	0	1										1				1	0	1	1	0	1				3	0	3	5	6
9. Dues																	1	0	1										1																	1
10. Music lessons																	1	0	1										1																	1
11. Christmas	1	1	2	0	2	2	2	2	4							8	2	1	3				2	0	2	1	1	2	7	2	0	2				0	1	1							3	18
12. Necessities				1	0	1										1				0	1	1							1													0	1	1	1	3
13. Gifts	0	1	1				0	1	1	3	0	3				5							0	2	2				2													0	1	1	1	8
14. Travel																										0	1	1	1				0	3	3	0	1	1				0	1	1	5	6
15. Straightening teeth.																										0	1	1	1																	1
16. Camp																	0	1	1										1	1	0	1													1	2
17. Golf clubs																														1	0	1													1	1
18. Vacation																	0	1	1										1																	1
19. Bedroom set																	0	1	1										1																	1
20. Radio																																							1	0	1				1	1
21. Typewriter																																							0	1	1				1	1
22. World's Fair																																										1	0	1	1	1
23. Fishing reel	1	0	1													1																														1
24. Tool chest				1	0	1										1																														1
25. To help parents							2	0	2							2																														2
26. Sled							1	0	1							1																														1
27. Parents wish it to be saved.							0	1	1							1																														1
28. Boat							0	1	1							1																														1
29. Pony										1	0	1				1																														1
30. Cow										1	0	1				1																														1
31. Farm										1	0	1				1																														1
32. Football										1	0	1				1																														1
33. Field glasses										1	0	1				1																														1
No response	1	0	1	4	2	6	13	18	31	6	1	7	5	3	8	53	8	3	11	0	1	1	1	1	2	0	1	1	15	2	6	8				1	1	2	4	2	6	0	4	4	20	88
Total pupils having savings accounts	2	3	5	10	6	16	6	14	20	16	8	24	6	5	11	76 50%	21	17	38	7	5	12	4	6	10	2	6	8	68 43%	20	12	32	2	4	6	19	10	29	9	4	13	8	12	20	100 53%	244 49%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

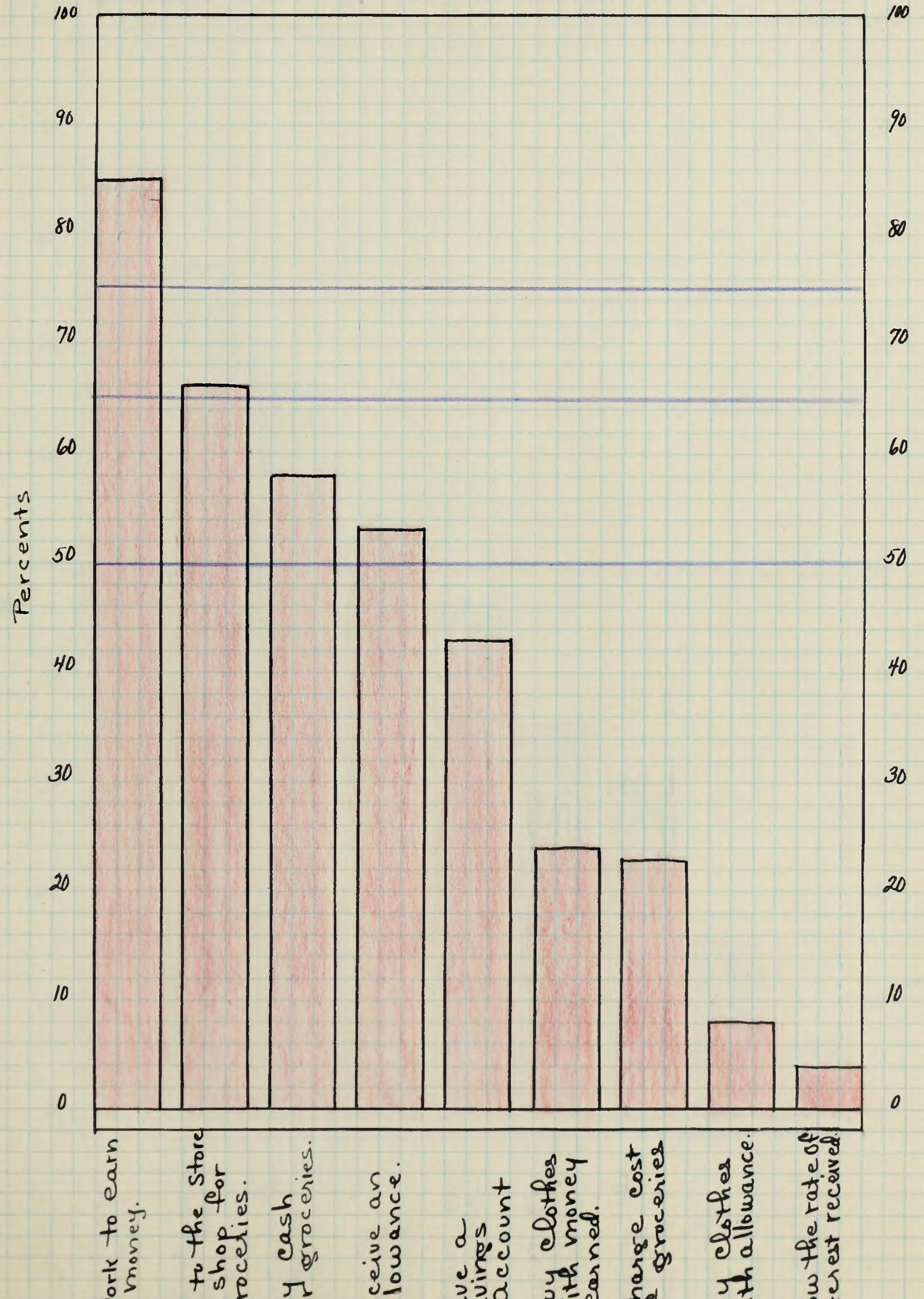
GRAPH 5- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING A KNOWLEDGE OF AND EXPERIENCE WITH MONEY.



GRAPH 6 - SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH MONEY OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 7- SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH MONEY OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 8- SHOWING THE KNOWLEDGE OF AND EXPERIENCE WITH MONEY OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

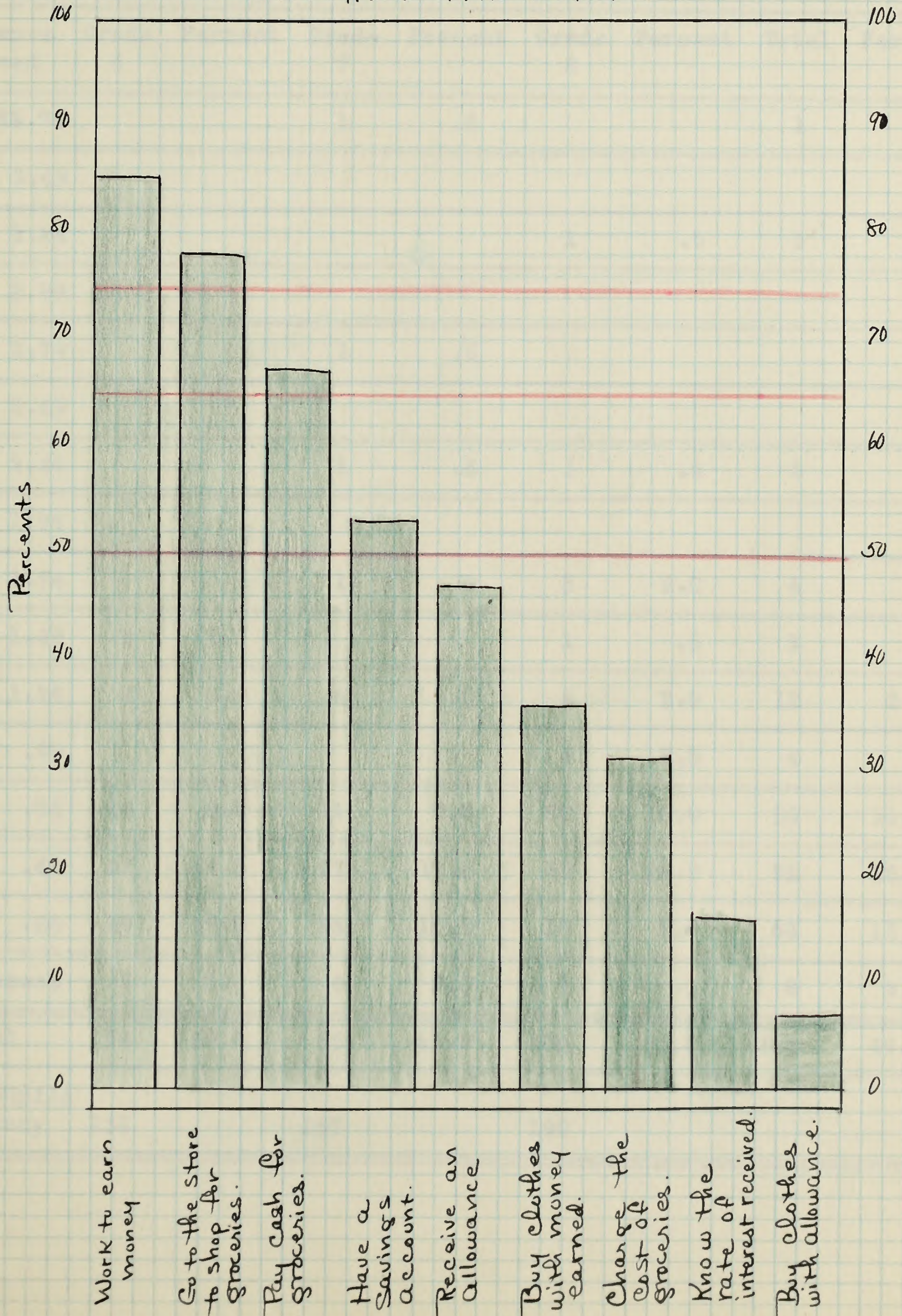


TABLE 9 - SHOWING THE AMOUNT OF MONEY PUPILS RECEIVE AS WEEKLY ALLOWANCE

Allowance Received	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
$3.50-$3.74			1	.6			1	.2
3.25- 3.49								
3.00- 3.24					1	.5	1	.2
2.75- 2.99								
2.50- 2.74			1	.6				
2.22- 2.49								
2.00- 2.24			1	.6	1	.5	2	.4
1.75- 1.99								
1.50- 1.74			1	.6	3	2.0	4	.8
1.25- 1.49	2	1.0			1	.5	3	.6
1.00- 1.24	4	3.0	4	3.0	4	2.0	12	2.0
.75- .99					4	2.0	4	.8
.50- .74	14	9.0	11	7.0	30	16.0	55	11.0
.25- .49	22	14.0	27	17.0	42	22.0	91	18.0
0- .24	29	19.0	15	10.0	18	9.0	62	12.0
No response	3	2.0	4	3.0	1	.5	8	2.0
Total	74	49.0	65	41.0	105	55.0	244	49.0
Total pupils in study	153		157		190			

TABLE 10 - SHOWING THE THINGS FOR WHICH PUPILS' ALLOWANCE WAS SPENT BESIDES CLOTHES

Grade	No. of pupils in grade	No. of pupils receiving allowance	Percent of total	No. of things for which allowance was spent	Articles most frequently mentioned	No. of pupils naming these articles	Percent of those receiving an allowance
6	153	74	49	23	Movies	19	26
					Candy	15	20
					Gifts	11	15
7	157	81	51	22	Movies	18	22
					Entertainment	17	21
					Candy	13	16
8	190	89	47	25	Movies	39	44
					Candy	28	31
					Entertainment	19	21
Total	500	244	49	36	Movies	76	31
					Candy	56	23
					Entertainment	38	16

TABLE 11 - SHOWING HOW PUPILS EARN MONEY

Grade	No. of pupils in grade	No. of pupils who work to earn money	Percent of total	No. of ways in which money is earned	Methods most frequently used	No. of pupils using these methods	Percent of those who work to earn money
6	153	127	83	27	Working around the home.	112	88
					Running errands.	102	80
					Shoveling snow.	65	51
7	157	134	85	36	Working around the home.	100	75
					Running errands.	92	69
					Cutting grass.	52	39
8	190	161	85	44	Working around the home.	103	64
					Running errands.	91	57
					Caring for children.	66	41
Total	500	422	84	65	Working around the home.	315	72
					Running errands.	285	68
					Shoveling snow.	176	42

TABLE 12 - SHOWING HOW PUPILS GET MONEY TO PUT IN THE SAVINGS BANK

Grade	No. of pupils in grade	No. of pupils having savings accounts	Percent of total	No. of ways in which pupils get money	Methods most frequently used	No. of pupils using these methods.	Percent of those having savings accounts.
6	153	76	50	3	Earn it.	51	67
					Gifts.	16	21
					From allowance.	9	12
7	157	68	43	3	Gifts.	28	41
					Earn it.	25	37
					From allowance.	10	15
8	190	100	53	5	Earn it.	50	50
					Gifts.	35	35
					From allowance.	15	15
Total	500	244	49	6	Earn it.	126	52
					Gifts.	79	32
					From allowance.	34	14

TABLE 13 - SHOWING THE THINGS FOR WHICH PUPILS ARE SAVING THEIR MONEY

Grade	No. of pupils in grade	No. of pupils saving money	Percent of total	No. of things for which money is being saved	Item most frequently mentioned	No. of pupils saving for this article	Percent of those saving money
6	153	100	65	21	Future	16	16
					Bicycle	15	15
					Christmas	8	8
7	157	142	90	16	Education	20	14
					Bicycle	15	11
					Future	15	11
8	190	170	89	15	Education	31	18
					Future	31	18
Total	500	412	82	33	Future	62	15
					Education	58	14
					Bicycle	34	8

E. Data on Sports.-- Tables 14 and 15 are summary tables on the subject of sports. Table 14 deals with the sports which the pupils know how to play while table 15 is concerned with the sports which they like to play. The graphs which follow simplify the data of these tables.

Graph 9compares grades 6, 7 and 8 in the sports which they know how to play. It will be seen, as in preceding graphs of this type, that the percents do not show a gradual increase from year to year. Of the eleven sports checked by the questionnaire, only two show an increase for each grade in the percent of pupils knowing how to participate. 48% of the pupils of grade 6 reported that they knew how to play ice hockey, 52% in grade seven, and 54% in grade 8. This gradual increase in percent is also seen in the basketball item. Grade 6 reports that 37% know how to play the game, grade 7, 46%, and grade 8, 47%. The remaining nine sports show an irregularity in the percent of pupils in each grade who know how to play. 93% of the sixth grade pupils know how to play baseball, 94% of the seventh grade, and 92% of the eighth grade. This is a fairly steady showing for these three grades. In football, however, 63% of grade 6 know how to play, 73% of grade 7, and only 64% of grade 8. Again, in swimming the percents are unsteady with 80% of the sixth grade knowing how to swim, 87% of the seventh grade, and 82% of the eighth grade. 71% in grade 6 know how to ice skate, 78% in grade 7, and 77% in grade 8. 44% of the sixth and seventh grade pupils know how to play tennis while the percent increases to 52 for grade 8. 54% of the sixth grade pupils report they know how to ride horseback, 50% of the seventh grade, and 51% of the eighth grade. Concerning soccer, 59% of grade 6 know how to play, 68% of grade 7 and

66% of grade 8. Field hockey shows a decided increase in percent for the eighth grade with 14% of the sixth grade knowing how to play, 13% of the seventh grade, and 30% of the eighth grade. This is probably due to the introduction of this game into the physical education program of the eighth grade. In grade 6, 64% of the pupils know how to ski, in grade 7, 67%, and in grade 8, 59%.

The descending bar graph 10, shows the sports which the sixth grade pupils know how to play. The three standards are given and it is seen that seven of the eleven sports reach a standard. 93% know how to play baseball, 80% know how to swim, 71% know how to ice skate, 64% know how to ski, 63% know how to play football, 59% know how to play soccer, and 54% know how to ride horseback.

Graph 11, in descending bars, shows the sports which the pupils of grade 7 know how to play. Eight of the eleven reach a standard, which is one sport more than in grade 6. 94% know how to play baseball, 87% know how to swim, 78% know how to ice skate, 73% know how to play football, 78% know how to play soccer, 77% know how to ski, 52% know how to play ice hockey, and 50% know how to ride horseback.

Graph 12 shows the sports which the pupils of grade 8 know how to play. Here, nine of the elven games reach at least one of the three standards. 92% know how to play baseball, 82% swim, 77% ice skate, 66% play soccer, 64% play football, 59% ski, 54% play ice hockey, 52% play tennis, and 51% ride horseback.

Graph 13 compares the three grades in the sports which they like to play. A comparison of this graph with graph 9 showing the sports pupils know how to play is interesting. They are by no means identical showing that pupils do not always like a game just because they know how to play

it. This interest factor is an important one for the teacher. In graph 13 only two games show an increase for each grade, and but one of these two is the same as in graph 9. Soccer shows a gradual increase from 56% of the sixth grade enjoying the game to 57% of the seventh and 59% of the eighth. Basketball, the one game which shows a yearly increase in both graphs 9 and 13, is enjoyed by 35% of the sixth grade, 40% of the seventh grade, and 56% of the eighth grade. This increase is the eighth grade is probably due to the playing of this game during the physical education period. Field hockey is enjoyed by 16% of grade 6, 10% of grade 7, and 25% of grade 8. Comparing this 25% in the eighth grade with the 30% on graph 9, it would seem to indicate that as the percent of pupils knowing how to play a game increases, it does not necessarily follow that there will be an increase in the percent of those who enjoy the game. The percent of those who like to play baseball remains much the same for the three grades with 84% in grade 6, 82% in grade 7, and 83% in grade 8. This is also true of those who like to play ice hockey with 46% in grade 6, 48% in grade 7, and 47% in grade 8. Of football, grade 6 reports that 63% like to play, grade 7, 64%, and grade 8, 57%. Comparing the percents on swimming, ice skating and skiing with those of graph 9, it is probably correct to conclude that the pupils who know how to participate in these sports also enjoy them. 82% of grade 6 like to swim, 85% of grade 7, and 82% of grade 8. In grade 6, 71% like to ice skate, in grade 7, 77%, and in grade 8, 75%. 62% of the pupils of grade 6 like to ski, 63% of grade 7, and 56% of grade 8. This latter decrease from the percent of grade 7 is due to a lack of knowledge as is shown in graph 9. Tennis is enjoyed by 44% of

the pupils of grade 6, 38% of grade 7, and 47% of grade 8. Horseback riding is enjoyed by 54% of the sixth grade, 57% of the seventh, and 48% of the eighth. In comparing the percents for tennis and horseback riding with those on graph 9, it would appear that a knowledge of these two sports does not necessarily make for enjoyment in participation.

Graph 14 shows the sports in which the pupils of grade 6 like to participate. Seven of the eleven sports mentioned reach at least one of the three standards chosen. 84% like to play baseball, 82% like to swim, 71% like to ice skate, 63% like to play football, 62% like to ski, 56% like to play soccer, and 54% like to ride horseback.

Graph 15 shows in descending bars the sports which the pupils of grade 7 like to play. The same seven as in grade 6 reach a standard, though with different percents. 87% like to swim, 82% like to play baseball, 77% like to ice skate, 64% like to play football, 63% like to ski, and 57% like to ride horseback and to play soccer.

The descending graph 16 shows the sports in which the pupils of grade eight like to participate. Seven sports again reach a standard. Five are the same as in grades 6 and 7, but horseback riding drops below the standard in this graph while basketball reaches it. 83% like to play baseball, 82% like to swim, 75% like to ice skate, 59% like to play soccer, 57% like to play football, and 56% like to play both basketball and to ski.

TABLE 14 - SHOWING THE SPORTS WHICH PUPILS KNOW HOW TO PLAY.

Sports played.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Baseball	8	12	20	15	12	27	22	26	48	20	9	29	10	8	18	142 93%	50	37	87	17	9	26	11	14	25	3	6	9	147 94%	41	30	71	9	7	16	27	10	37	13	10	23	13	15	28	175 92%	464 93%
2. Football	8	4	12	14	2	16	20	11	31	20	8	28	8	2	10	97 63%	50	18	68	17	2	19	11	7	18	3	6	9	114 73%	38	10	48	9	2	11	27	2	29	12	4	16	13	5	18	122 64%	333 67%
3. Ice Hockey	5	2	7	12	4	16	15	6	21	15	5	20	7	3	10	74 48%	40	11	51	13	1	14	6	4	10	2	5	7	82 52%	34	13	47	6	1	7	19	0	19	8	5	13	9	3	12	98 52%	254 51%
4. Swimming	5	11	16	11	11	22	18	29	47	16	10	26	6	6	12	123 80%	41	39	80	17	9	26	9	13	22	3	6	9	137 87%	33	29	62	8	8	16	24	14	38	12	8	20	12	7	19	155 82%	415 83%
5. Ice Skating	6	7	13	11	7	18	17	21	38	15	7	22	8	9	17	108 71%	41	34	75	15	6	21	9	8	17	3	6	9	122 78%	35	23	58	8	6	14	23	9	32	11	7	18	13	11	24	146 77%	376 73%
6. Tennis	3	4	7	12	6	18	14	11	25	8	5	13	2	2	4	67 44%	22	22	44	7	2	9	5	5	10	1	5	6	69 44%	20	17	37	2	5	7	20	15	35	3	4	7	4	9	13	99 52%	235 47%
7. Horseback Riding	4	3	7	11	5	16	13	10	23	17	7	24	5	8	13	83 54%	23	14	37	15	5	20	7	8	15	1	5	6	78 50%	26	9	35	6	4	10	14	2	16	9	8	17	10	8	18	96 51%	257 51%
8. Soccer	5	11	16	13	2	15	20	12	32	16	7	23	5	0	5	91 59%	41	30	71	6	0	6	11	13	24	2	5	7	108 68%	34	24	58	1	0	1	23	11	34	13	9	22	10	1	11	126 66%	325 65%
9. Basketball	4	0	4	12	0	12	11	5	16	17	5	22	2	0	2	56 37%	39	8	47	6	2	8	7	5	12	1	5	6	73 46%	36	12	48	2	2	4	28	15	43	8	6	14	8	2	10	89 47%	218 44%
10. Field Hockey	2	0	2	2	1	3	6	4	10	6	1	7				22 14%	6	8	14				2	1	3	0	3	3	20 13%	11	31	42				6	6	12	1	0	1	1	1	2	57 30%	99 20%
11. Skiing	6	10	16	13	7	20	19	21	40	8	2	10	6	6	12	98 64%	39	28	67	16	6	22	5	3	8	2	6	8	105 67%	35	22	57	7	6	13	15	2	17	5	0	5	12	9	21	113 59%	316 63%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

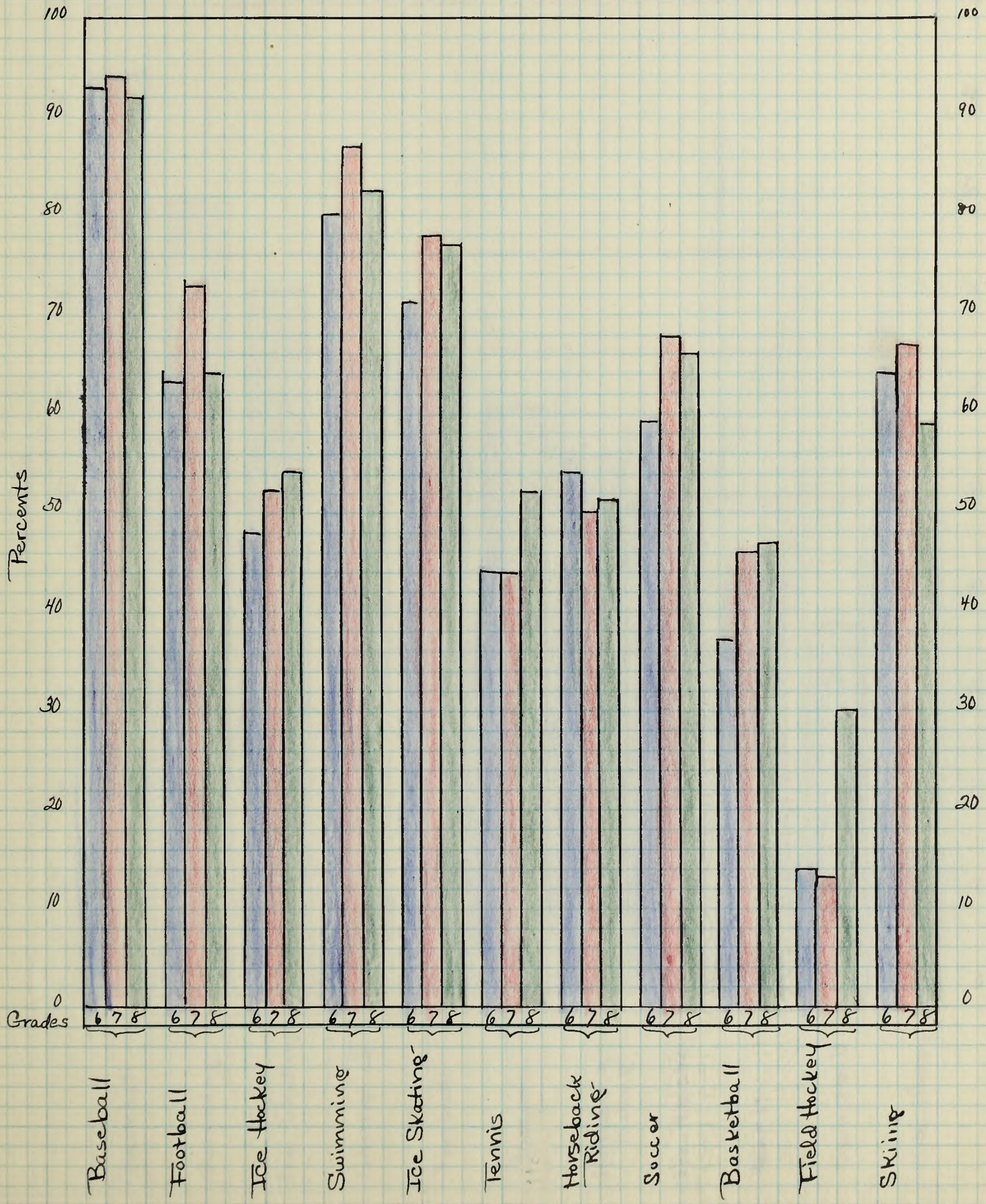
TABLE 15 - SHOWING THE SPORTS WHICH PUPILS LIKE TO PLAY.

	6th Grade	7th Grade	8th Grade

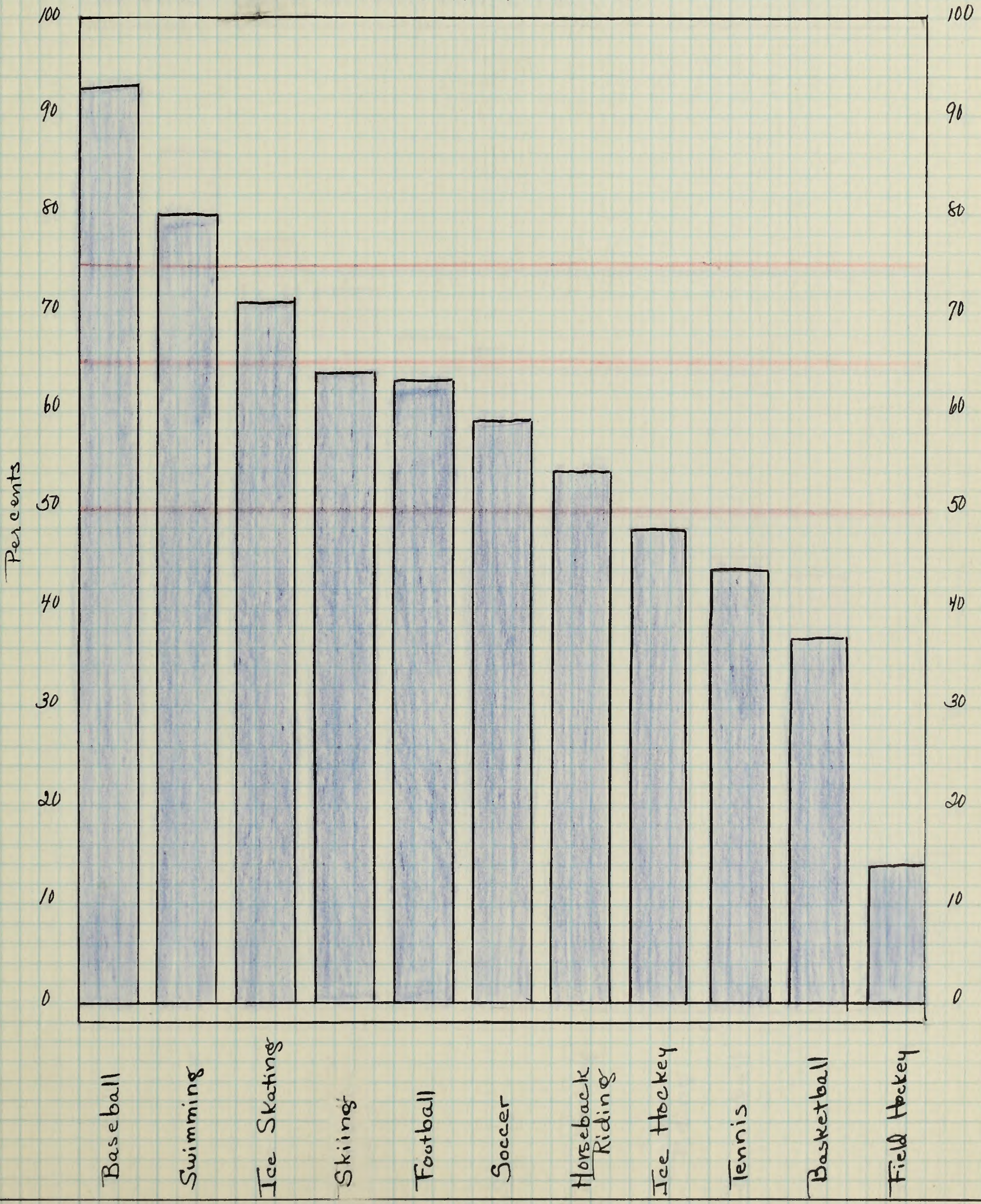
TABLE 15 - SHOWING THE SPORTS WHICH PUPILS LIKE TO PLAY.

Sports enjoyed.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Baseball	8	12	20	14	11	25	21	23	44	18	9	27	7	6	13	129 84%	42	32	74	16	8	24	10	13	23	1	6	7	128 82%	32	30	62	9	7	16	25	9	34	12	8	20	12	13	25	157 83%	414 83%
2. Football	8	4	12	14	1	15	21	11	32	20	8	28	7	2	9	96 63%	46	16	62	17	1	18	9	7	16	3	2	5	101 64%	33	10	43	9	1	10	25	1	26	12	4	16	2	13	15	110 57%	367 61%
3. Ice Hockey	6	2	8	10	3	13	16	6	22	14	5	19	6	3	9	71 46%	38	9	47	12	1	13	7	3	10	1	5	6	76 48%	32	10	42	5	1	6	15	0	15	8	4	12	3	7	10	89 47%	236 47%
4. Swimming	6	11	17	12	11	23	20	28	48	15	10	25	7	6	13	126 82%	40	40	80	17	9	26	9	13	22	3	6	9	137 87%	33	29	62	8	8	16	23	15	38	12	8	20	7	12	19	155 82%	418 84%
5. Ice Skating	5	7	12	14	7	21	17	20	37	15	7	22	7	9	16	108 71%	42	33	75	15	6	21	9	8	17	2	6	8	121 77%	34	23	57	8	6	14	23	8	31	11	7	18	11	12	23	143 75%	372 74%
6. Tennis	3	4	7	12	6	18	14	11	25	8	5	13	2	2	4	67 44%	20	20	40	6	3	9	3	2	5	1	5	6	60 38%	16	15	31	2	5	7	19	15	34	3	4	7	8	3	11	90 47%	217 43%
7. Horseback Riding	4	3	7	11	5	16	14	9	23	15	7	22	6	8	14	82 54%	22	13	35	16	6	22	7	9	16	1	5	6	89 57%	26	8	34	6	3	9	13	2	15	8	8	16	7	10	17	91 48%	262 52%
8. Soccer	5	11	16	12	2	14	19	10	29	15	6	21	5	0	5	85 56%	29	28	57	5	0	5	10	13	23	1	4	5	90 57%	26	22	48	1	0	1	23	8	31	13	9	22	0	10	10	112 59%	287 57%
9. Basketball	5	0	5	10	0	10	11	5	16	17	5	22	1	0	1	54 35%	36	5	41	5	1	6	7	4	11	0	5	5	63 40%	28	11	39	3	2	5	27	14	41	7	6	13	1	7	8	106 56%	223 45%
10. Field Hockey	4	0	4	2	1	3	6	4	10	6	1	7				24 16%	3	7	10				2	1	3	0	3	3	16 10%	6	30	36				6	5	11				1	0	1	48 25%	88 18%
11. Skiing	3	10	13	11	7	18	20	21	41	8	3	11	6	6	12	95 62%	39	25	64	14	5	19	5	3	8	2	6	8	99 63%	32	22	54	6	5	11	15	1	16	4	0	4	9	12	21	106 56%	300 60%
12. Hunting	2	0	2				2	0	2							4 3%	5	0	5	1	0	1	2	0	2				8 5%	5	0	5	1	0	1	3	0	3				1	0	1	10 5%	22 5%
13. Fishing	1	0	1				1	0	1				2	0	2	4 3%	5	1	6	3	0	3	3	0	3				12 8%	3	0	3	2	0	2	17	6	23				3	0	3	31 16%	47 9%
14. Sliding	1	1	2	0	2	2	1	4	5	0	1	1	1	0	1	11 7%	6	7	13	7	2	9	2	2	4				26 16%	3	6	9	1	4	5	3	3	6	0	1	1				21 11%	58 12%
15. Wrestling	1	0	1													1 .65%	1	0	1	3	0	3							4 2%	1	0	1				5	0	5	1	0	1				7 4%	12 2%
16. Boxing	1	0	1													1 .65%	2	0	2	3	0	3	1	0	1				6 4%	1	0	1				14	0	14	3	0	3				18 9%	25 5%
17. Roller Skating	0	1	1	0	1	1	0	3	3	0	2	2	0	1	1	8 5%	2	7	9				0	1	1				10 6%	0	4	4	0	2	2	21	12	33				0	1	1	40 21%	58 18%
18. Bicycling	0	1	1										1	0	1	2 1%	1	6	7							0	1	1	8 5%				2	0	2	2	1	3				0	1	1	6 3%	16 3%
19. All winter sports				4	0	4										4 3%																														4 .80%
20. Camping				1	0	1										1 .65%																										1	0	1	1 .53%	2 .40%
21. Racing				1	0	1	1	0	1				0	1	1	3 2%	2	0	2	3	1	4	2	0	2				8 5%	0	1	1							3	0	3	1	0	1	5 3%	16 3%
22. Ping pong				1	0	1							1	0	1	2 1%	2	1	3				0	1	1				4 2%	1	1	2							0	1	1				3 2%	9 2%
23. Golf				1	0	1	1	1	2				2	0	2	5 3%	3	0	3				1	0	1				4 2%	5	1	6				4	0	4							10 5%	19 4%
24. Boating				1	2	3	0	1	1				1	0	1	5 3%	2	2	4	1	1	2							6 4%	1	0	1	1	0	1	1	1	2				0	1	1	5 3%	16 3%
25. Hiking				0	2	2	0	1	1	1	0	1				4 3%	3	1	4	1	0	1							5 3%	0	4	4				0	1	1	1	0	1	0	2	2	8 4%	17 3%
26. Trapping							1	0	1							1 .65%														1	0	1	1	0	1										2 1%	3 .60%
27. Sailing										1	0	1				1 .65%	0	1	1				2	0	2				3 2%	1	0	1													1 .53%	5 1%
28. All track events										2	0	2				2 1%	4	0	4							1	0	1	5 3%							6	0	6	1	0	1				7 4%	14 3%
29. Tobogganing													1	0	1	1 .65%	0	3	3				0	1	1				4 3%				0	1	1	1	0	1	2	0	2				4 2%	9 2%
30. High jumping													1	0	1	1 .65%														1	0	1				1	0	1							2 1%	3 .60%
31. Badminton													1	1	2	2 1%										0	1	1	1 .61%													1	2	3	3 2%	6 1%
32. Canoeing																	0	1	1										1 .64%							0	1	1							1 .53%	2 .40%
33. Polo																	0	1	1	1	0	1							2 1%	1	0	1				1	0	1				1	0	1	3 2%	5 1%
34. Shooting																														1	0	1													1 .53%	1 .20%
35. Bowling																														1	0	1													1 .53%	1 .20%
36. Snowshoeing																														1	0	1													1 .53%	1 .20%
37. Pool																														1	0	1													1 .53%	1 .20%
38. Dilley ball																														0	1	1	0	1	1										2 1%	2 .40%
39. Hand ball																																				13	4	17							17 9%	17 3%
40. Soft ball																																				1	0	1							1 .53%	1 .20%
41. Diving																																				1	0	1							1 .53%	1 .20%
42. Rope climbing																																				1	0	1							1 .53%	1 .20%
43. Yachting																																				1	0	1							1 .53%	1 .20%
44. La Crosse																																				1	0	1							1 .53%	1 .20%
45. Skipping rope																																										0	1	1	1 .53%	1 .20%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

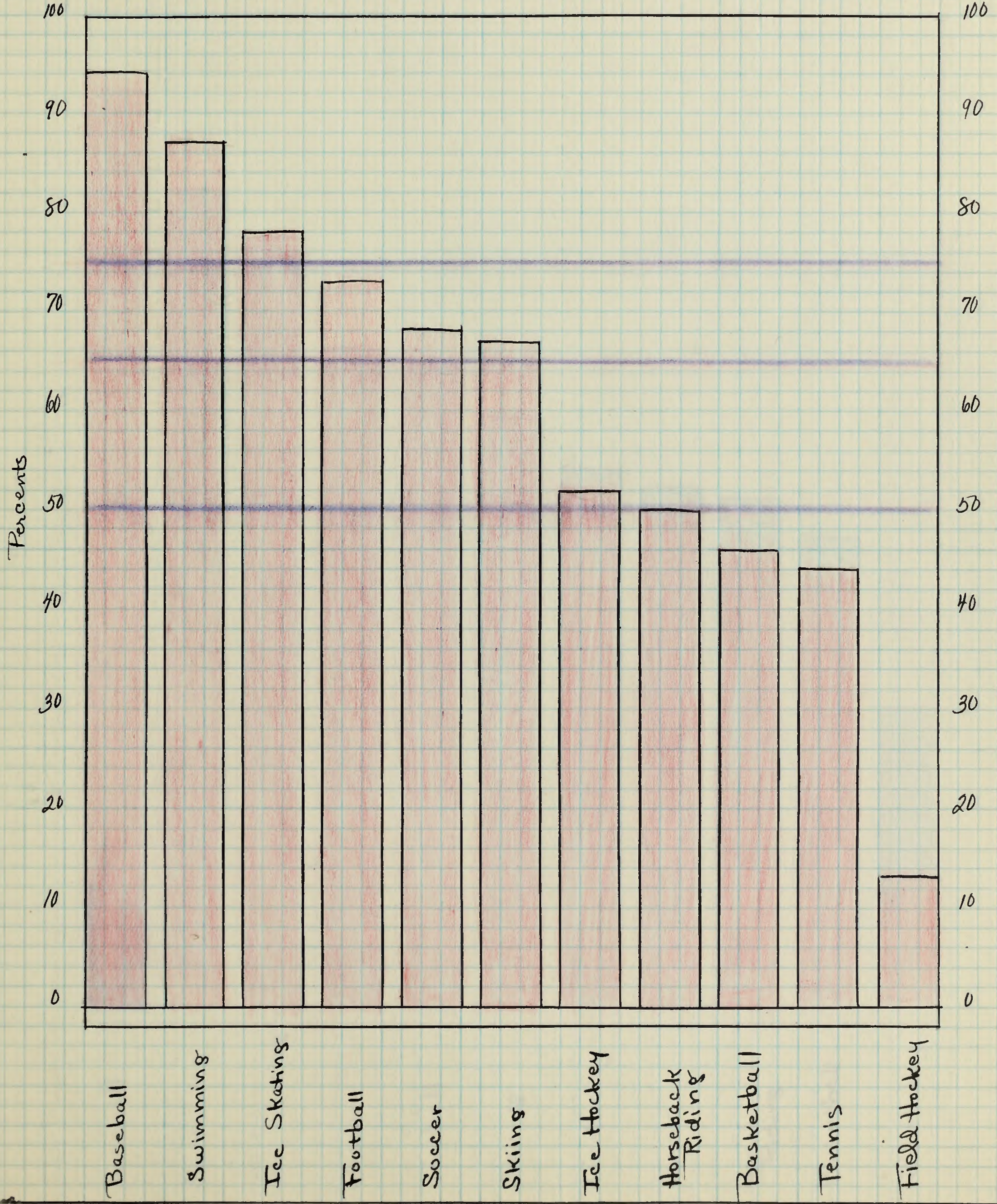
GRAPH 9- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 WHO KNOW HOW TO PARTICIPATE IN CERTAIN SPORTS.



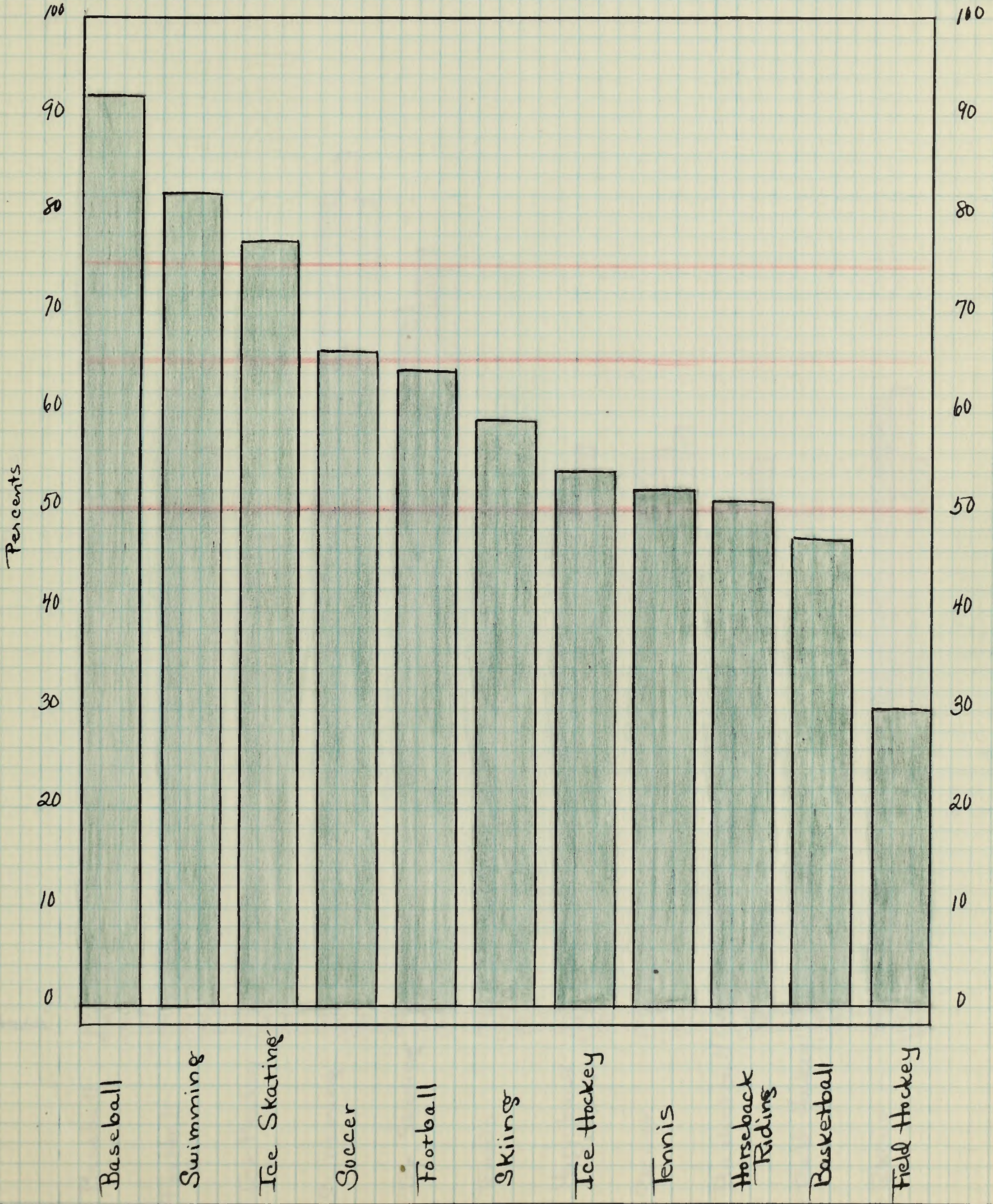
GRAPH 10 - SHOWING THE SPORTS WHICH PUPILS KNOW HOW TO PLAY IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



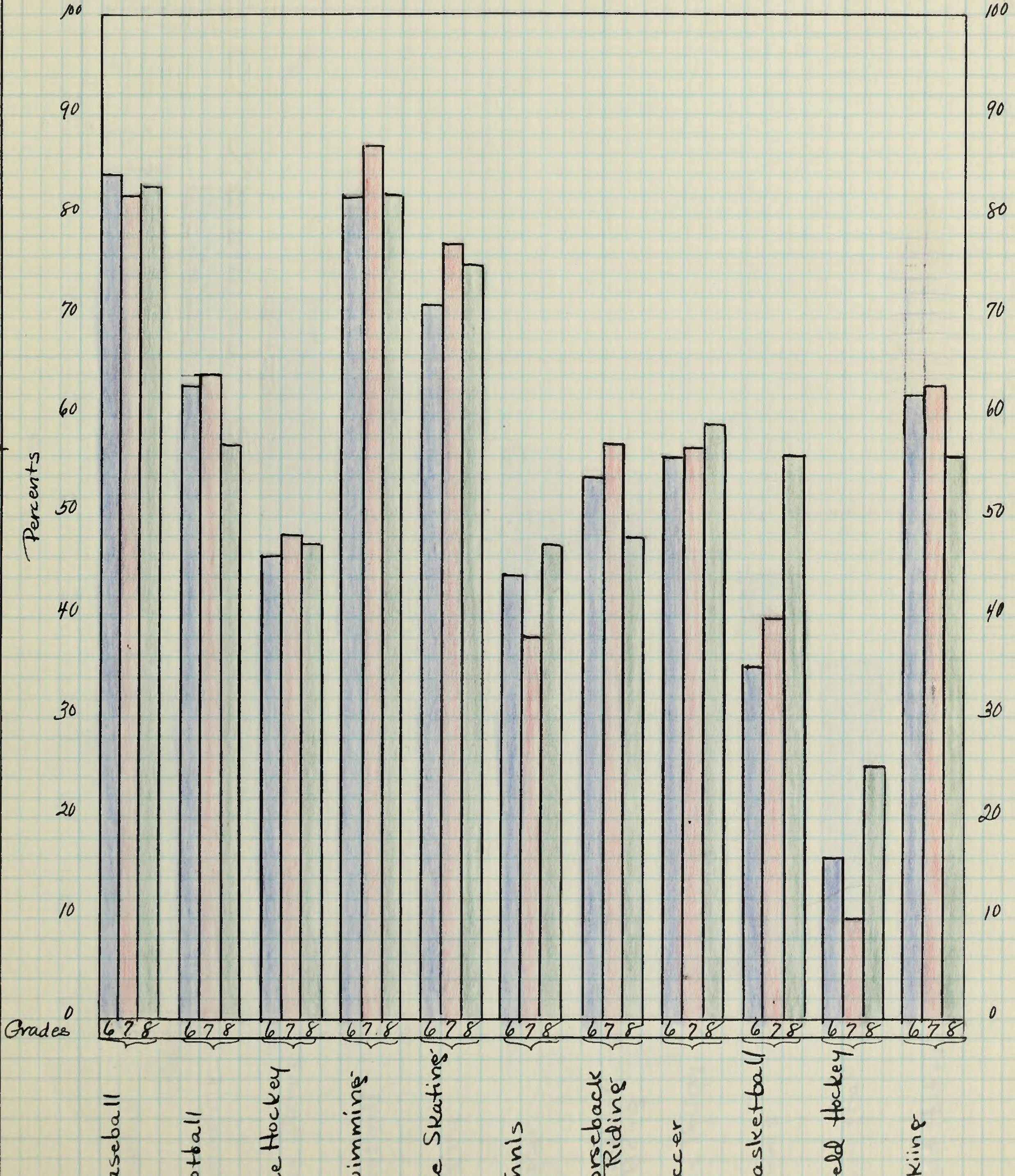
GRAPH II- SHOWING THE SPORTS WHICH PUPILS KNOW HOW TO PLAY IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



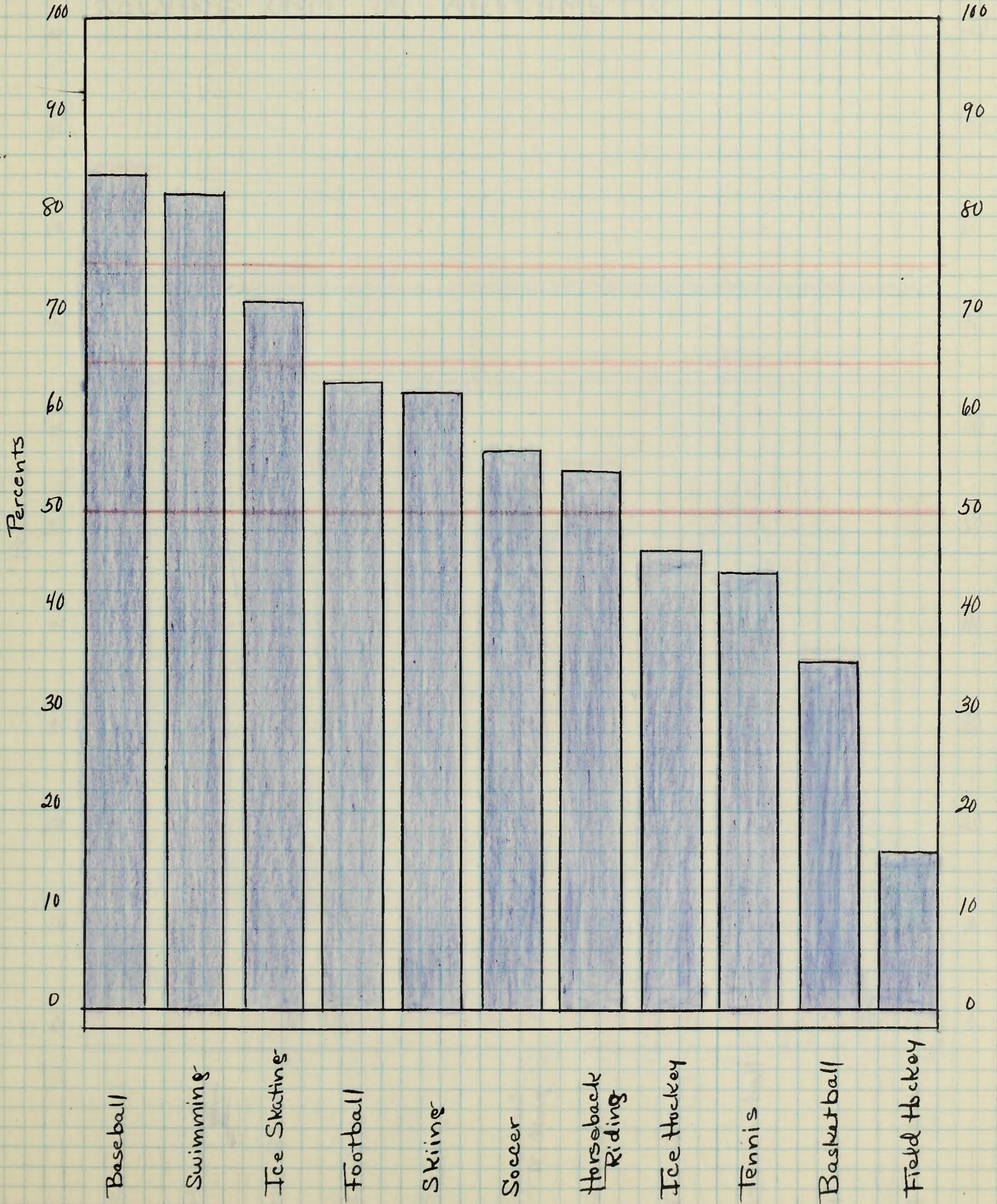
GRAPH 12- SHOWING THE SPORTS WHICH PUPILS KNOW HOW TO PLAY IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



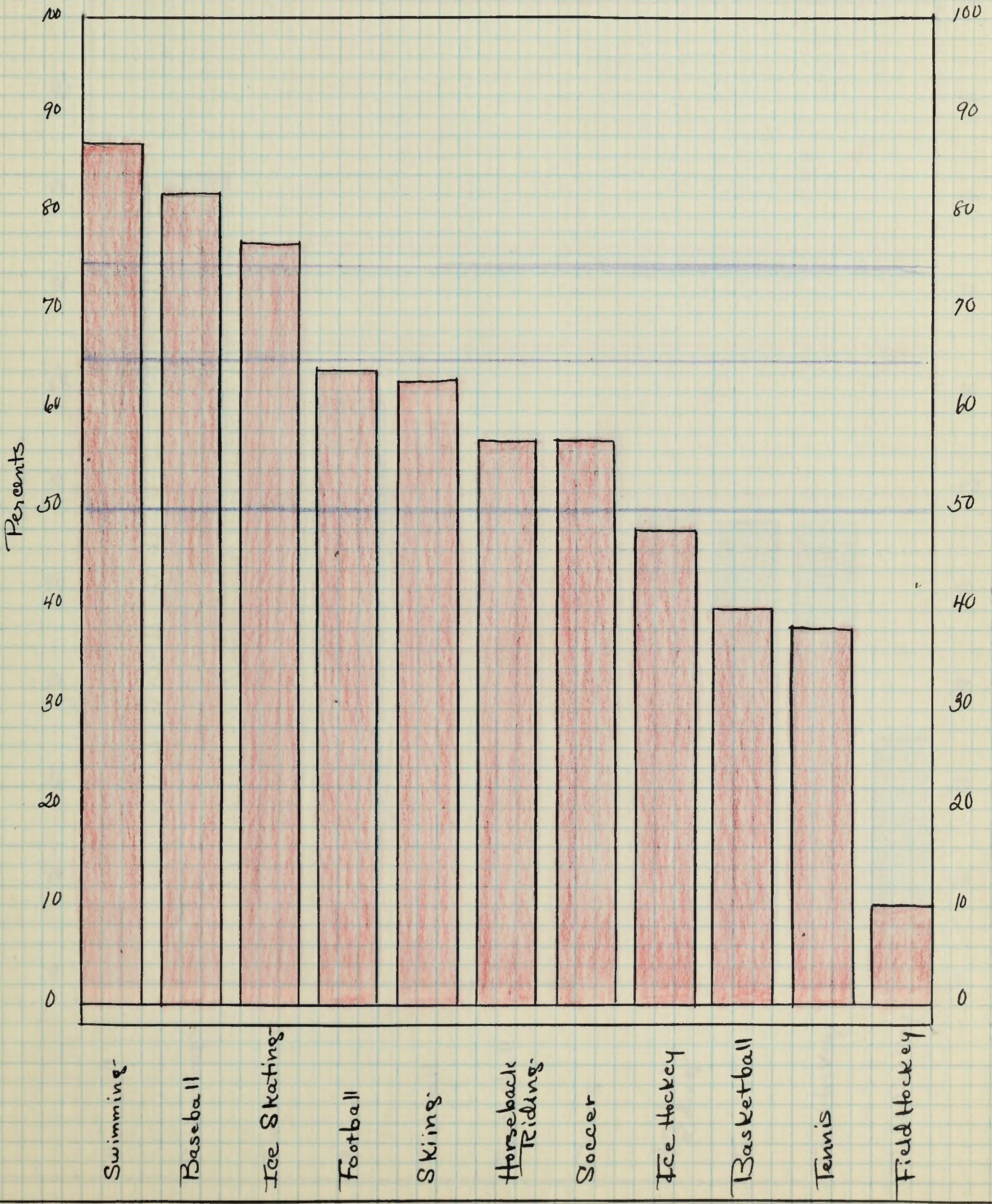
GRAPH 13- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 WHO LIKE TO PARTICIPATE IN CERTAIN SPORTS.



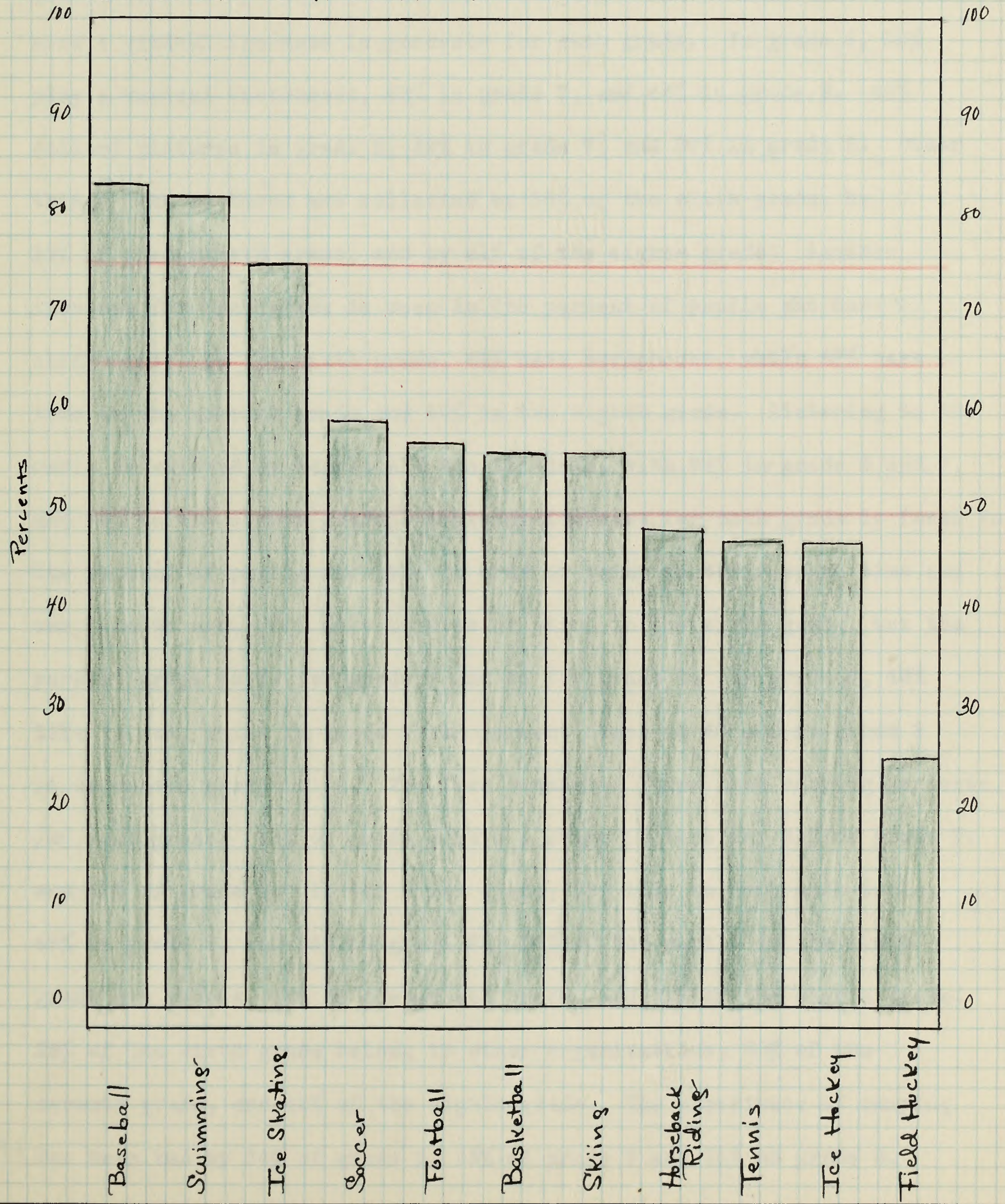
GRAPH 14- SHOWING THE SPORTS IN WHICH PUPILS OF GRADE 6 LIKE TO PARTICIPATE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 15 - SHOWING THE SPORTS IN WHICH PUPILS OF GRADE 7 LIKE TO PARTICIPATE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 16 - SHOWING THE SPORTS IN WHICH PUPILS OF GRADE 8 LIKE TO PARTICIPATE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



F. Data on Hobbies.-- Table 16 gives a summary of all the data on hobbies secured from the questionnaire.

Graph 17 simplifies part of the data on table 16 in comparing grades 6, 7 and 8 in certain hobby experiences. Four of the twelve items show a gradual increase in percents for each grade. In grade 6, 38% play a musical instrument, 42% in grade 7, and 46% in grade 8. 46% collect pictures in grade 6, 49% in grade 7, and 50% in grade 8. Other things than pictures are collected by 30% of the sixth grade, by 39% of the seventh grade, and by 41% of the eighth grade. Another increase for each grade is seen in the percent of pupils who have scrapbooks. In the sixth grade, 44% have scrapbooks, while 47% have them in the seventh grade and 50% in the eighth grade. Listening to the radio is enjoyed by nearly all the children, with 94% in grade 6 and 7, and 97% in the eighth grade. A steady decrease for each grade is found in the percent of pupils who like to draw or paint in their spare time and who like to sew. 78% like to draw or paint in the sixth grade, but the percent drops to 72 for grade 7 and 66 for grade 8. In grade 6, 48% like to sew, while in grade 7 the percent drops to 40 and in grade 8 it decreases again to 36. The five remaining items show varying percents for each grade. 33% of grade 6 have a stamp collection, 31% of grade 7, and 41% of grade 8. In the sixth grade, 58% like to work with tools, 63% in grade 7, and 56% in grade 8. 36% of the pupils in the sixth grade are scouts, 23% of the seventh grade, and 31% of the eighth grade. 25% of the sixth grade belong to other organizations, 20% of the seventh grade, and 42% of the eighth grade. The experience of camping has been had by 34% of grade 6, 33% of grade 7 and 36% of grade 8.

Graph 18, a descending bar graph, shows the hobby experiences of pupils in grade 6 with the three standards. Only three of the twelve experiences checked reach a standard. 94% like to listen to the radio, 78% draw or paint in their spare time, and 60% like to work with tools.

The hobby experiences of the seventh grade are shown in graph 19. As in the sixth grade only, three reach a standard, and they are the same three. In this grade, 94% like to listen to the radio, 72% draw or paint in their spare time, and 63% like to work with tools.

In grade 20, five hobby experiences of the eighth grade reach a standard. 97% like to listen to the radio, 66% draw or paint in their spare time, 56% like to work with tools, 50% have a scrapbook, and the same percent collect pictures.

Tables 17 through 27 contain detailed information on hobby experiences which should be useful to the teacher in planning an approach to an informational problem-solving unit using this topic.

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TABLE 16 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH HOBBIES.

A. Hobby experiences	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Play a musical instrument	3	6	9	4	6	10	6	13	19	11	2	13	3	5	8	59 39%	21	16	37	6	3	9	1	10	11	2	5	7	64 41%	17	14	31	5	3	8	15	9	24	2	4	6	7	8	15	84 44%	207 41%
2. Have a stamp collection	2	1	3	10	7	17	4	6	10	9	2	11	5	4	9	50 33%	25	6	31	4	3	7	2	3	5	2	3	5	48 31%	20	10	30	1	4	5	17	6	23	9	2	11	5	4	9	78 41%	176 35%
3. Collect pictures.	4	9	13	7	8	15	5	16	21	7	7	14	3	4	7	70 46%	21	26	47	8	4	12	6	5	11	1	6	7	77 49%	12	17	29	7	7	14	12	15	27	3	9	12	4	9	13	95 50%	242 48%
4. Collect other things	2	3	5	7	4	11	4	9	13	5	5	10	2	5	7	46 30%	19	19	38	5	2	7	5	6	11	2	4	6	62 39%	18	7	25	2	3	5	17	8	25	2	3	5	7	10	17	77 41%	185 37%
5. Have a scrapbook	2	7	9	6	4	10	4	18	22	8	7	15	5	6	11	67 44%	14	28	42	9	5	14	4	9	13	1	4	5	74 47%	12	20	32	9	8	17	8	13	21	5	8	13	4	8	12	95 50%	236 47%
6. Draw or paint in spare time.	6	9	15	13	11	24	16	26	42	17	10	27	4	7	11	119 78%	32	34	66	14	7	21	8	12	20	1	5	6	113 72%	25	26	51	5	4	9	21	12	33	6	6	12	8	8	16	121 64%	353 71%
7. Like to sew	1	11	12	2	13	15	4	26	30	2	8	10	0	7	7	74 48%	8	39	47	0	8	8	0	7	7	0	1	1	63 40%	2	22	24	1	9	10	1	16	17	1	6	7	1	9	10	68 36%	205 41%
8. Like to work with tools.	8	0	8	14	6	20	22	8	30	17	4	21	8	2	10	89 58%	46	10	56	15	2	17	10	8	18	3	5	8	99 63%	33	15	48	5	1	6	23	1	24	9	3	12	12	5	17	107 56%	295 59%
9. Like to listen to the radio.	8	11	19	15	13	28	22	28	50	18	10	28	10	9	19	144 94%	45	43	88	17	10	27	11	14	25	2	6	8	148 94%	39	31	70	9	10	19	28	17	45	13	10	23	13	14	27	184 97%	476 95%
10. A member of Scouts.				2	7	9	5	23	28	6	4	10	1	7	8	55 36%	17	7	24				1	6	7	1	4	5	36 23%	14	6	20	0	1	1	12	8	20	6	1	7	4	6	10	58 31%	149 30%
11. A member of another organization.	1	0	1	3	4	7	3	13	16	6	5	11	1	3	4	39 25%	3	12	15	4	3	7	1	5	6	1	2	3	31 20%	13	11	24	7	4	11	14	8	22	9	5	14	3	5	8	79 42%	149 30%
12. Have been to camp.	1	1	2	4	2	6	11	18	29	7	4	11	3	1	4	52 34%	12	18	30	9	3	12	2	5	7	1	2	3	52 33%	14	19	33	2	2	4	14	4	18	4	1	5	4	4	8	68 36%	172 34%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. Musical instruments played.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Guitar	1	2	3				0	1	1	0	1	1				5	6	1	7							0	1	1	8	6	2	8				1	0	1				1	2	3	12	25
2. Harmonica	2	0	2				2	0	2	3	0	3	1	2	3	10				1	0	1				1	3	4	5	2	0	2	1	0	1	1	0	1	1	0	1	5	0	5	10	25
3. Clarinet	1	0	1	1	0	1							1	0	1	3				2	0	2	0	1	1				3	1	0	1	1	0	1	3	0	3							5	11
4. Piano	0	4	4	3	6	9	1	6	7	3	0	3	0	4	4	27	8	10	18	0	2	2	0	6	6	0	3	3	29	5	10	15	1	3	4	0	8	8	1	3	4	1	4	5	36	92
5. Cornet				1	0	1							0	1	1	2							1	0	1				1				1	0	1										1	4
6. Cello				0	1	1										1	0	1	1										1													0	1	1	1	3
7. Trumpet							2	0	2							2	2	0	2										2	2	0	2				3	0	3				1	0	1	6	10
8. Accordion							1	0	1							1	0	1	1										1																	2
9. Violin							0	6	6	3	1	4				10	2	2	4	2	1	3	0	1	1				8	0	2	2				4	1	5	0	3	3	0	3	3	13	31
10. Bugle							0	1	1							1																														1
11. Drum										2	0	2				2	1	0	1										1																	3
12. Ukelele										0	1	1				1																										0	1	1	1	2
13. Banjo																	1	0	1										1	1	0	1				1	0	1							2	3
14. Xylophone																	1	0	1				0	2	2				3																	3
15. Jew's harp																	1	0	1							2	0	2	3				1	0	1										1	4
16. Saxophone																	1	0	1	1	0	1							2							1	0	1							1	3
17. Zyther																										1	0	1	1																	1
18. Trombone																														1	0	1				0	2	2							3	3
19. Organ																																				0	1	1							1	1
Total pupils playing instruments	3	6	9	4	6	10	6	13	19	11	2	13	3	5	8	59 39%	21	16	37	6	3	9	1	10	11	2	5	7	64 41%	17	14	31	5	3	8	15	9	24	2	4	6	7	8	15	84 44%	207 41%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. Pictures collected.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Movie stars	0	7	7	0	2	2	0	4	4	1	1	2	0	1	1	16	0	12	12	1	2	3	2	3	5	0	5	5	25	0	10	10	2	5	7	3	14	17	1	7	8	1	4	5	47	88
2. Sports	4	0	4	7	0	7	0	5	5	1	0	1	1	0	1	18	8	2	10	7	0	7	1	0	1				18	9	3	12				4	0	4				1	0	1	17	53
3. Current events	1	0	1	1	2	3				0	1	1				5	2	0	2	2	0	2							4				2	5	7	0	1	1	0	1	1				9	18
4. Wars	0	1	1													1																														1
5. Babies	0	1	1				0	2	2				0	1	1	4	0	1	1										1	0	1	1										0	1	1	2	7
6. Actors and actresses				1	0	1										1																														1
7. Historical spots.				1	1	2										2	0	6	6										6	0	3	3				0	1	1							4	12
8. Butterflies				0	1	1										1																														1
9. Animals				0	1	1	1	1	2	1	1	2	0	9	9	14	2	1	3				1	2	3				6	2	2	4										0	4	4	8	28
10. Snapshots				0	1	1										1	1	0	1										1	0	3	3				4	0	4				3	0	3	10	12
11. Birds							0	1	1							1	1	0	1				0	1	1				2																	3
12. Flowers							0	3	3							3	0	1	1										1																	4
13. Children							0	2	2							2																														2
14. Geography							0	1	1							1							0	1	1				1																	2
15. Automobiles										2	1	3				3							1	0	1				1	1	0	1													1	5
16. Cartoons										0	2	2				2	1	1	2										2	1	0	1													1	5
17. Boats										0	1	1				1							1	0	1				1	1	0	1													1	3
18. Cowboys													1	0	1	1	1	0	1										1																	2
19. Postal cards																	1	0	1							0	1	1	2				0	1	1	1	0	1				0	1	1	3	5
20. Out-door life																	2	0	2										2																	2
21. People																	1	1	2										2				2	0	2	1	0	1	1	0	1	0	1	1	5	7
22. Scenery																	1	2	3				0	2	2	0	1	1	6	0	2	2				1	1	2				1	0	1	5	11
23. Radio stars																	1	0	1				1	0	1				2	0	1	1													1	3
24. Pictures to draw																	1	0	1										1																	1
25. Magazine covers																	1	0	1										1																	1
26. College																	1	0	1										1																	1
27. Musicians																	1	0	1										1																	1
28. Writers																	1	0	1										1																	1
29. Airplanes																							2	0	2				2	3	0	3				1	0	1	1	0	1				5	7
30. Trains																							1	0	1				1																	1
31. Faces																							0	1	1				1																	1
32. Fashions																	1	0	1										1	1	1	2				0	1	1							3	4
33. Currier and Ives																														1	0	1													1	1
34. Motion picture reels																																				1	0	1							1	1
35. Scouting																														1	1	2													2	2
36. Playing cards																														1	0	1													1	1
Total pupils collecting pictures	4	9	13	7	8	15	5	16	21	7	7	14	3	4	7	70 46%	21	26	47	8	4	12	6	5	11	1	6	7	77 49%	12	17	29	7	7	14	12	15	27	3	9	12	4	9	13	95 50%	242 48%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

D. Other things collected.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Books	1	0	1							1	0	1	1	0	1	3	2	3	5				1	0	1				6				0	1	1	1	1	2	0	1	1				4	13
2. Stones	0	1	1				0	5	5							6	2	1	3				1	1	2	0	2	2	7	2	2	4													4	17
3. Toy animals				1	0	1	0	2	2				0	1	1	4	0	4	4				0	1	1	1	1	2	7	2	0	2										0	2	2	4	15
4. Sea shells				1	0	1	0	1	1							2	1	1	2				0	1	1	0	1	1	4							1	0	1				0	1	1	2	8
5. Glass				1	0	1										1										0	1	1	1																	2
6. Music				1	0	1										1																														1
7. Soap-box derbies				1	0	1										1																														1
8. Snakes				1	0	1										1																														1
9. Bottles				0	1	1										1																														1
10. Pencils				0	1	1										1				1	0	1							1																	2
11. Paper dolls				0	1	1										1																														1
12. Coins				0	1	1				0	1	1				2	2	0	2	1	0	1							3	0	1	1				3	0	3				1	1	2	6	11
13. Toy soldiers							1	0	1							1																														1
14. Model Airplanes							1	0	1							1	2	0	2				1	0	1				3							1	0	1							1	5
15. Pins							1	0	1							1				1	0	1	0	1	1	0	1	1	3	0	1	1	0	1	1	1	1	2							4	8
16. Match covers										3	1	4				4	3	0	3	1	0	1				1	0	1	5	2	0	2	1	0	1				1	0	1	1	0	1	5	14
17. Canes										1	0	1				1														1	0	1													1	2
18. Plants										1	0	1				1																														1
19. Drawings										0	1	1				1																				1	1	2	0	1	1				3	4
20. School papers										0	1	1				1																														1
21. Marbles										0	1	1	0	2	2	3	1	0	1										1																	4
22. Jewelry										0	1	1				1																														1
23. Nests													1	0	1	1																										0	1	1	1	2
24. Knives													1	0	1	1																														1
25. Buttons													0	1	1	1														0	1	1													1	2
26. Dolls													0	1	1	1	0	3	3										3							0	2	2							2	6
27. Toy furniture													0	1	1	1																														1
28. Junk																	2	0	2										2	3	0	3													3	5

TABLE 16 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH HOBBIES

D. (continued) Other things collected.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
29. Furs																	1	0	1										1																	1
30. Guns																	1	0	1										1	1	0	1													1	2
31. Autographs																	1	0	1										1	1	0	1	0	1	1										2	3
32. Small trees																	1	0	1										1																	1
33. Leaves																	0	1	1				0	1	1				2										1	0	1				1	3
34. Butterflies																	0	2	2										2	0	1	1							0	1	1				2	4
35. Puppets																	0	1	1										1																	1
36. Souvenirs																	0	3	3										3							0	1	1				0	1	1	2	5
37. Maps																	0	1	1										1																	1
38. Flowers																	0	1	1										1	0	1	1				0	1	1	0	1	1	0	3	3	6	7
39. Menues																	0	1	1										1																	1
40. Postmarks																							1	0	1				1																	1
41. Arrow heads																							1	0	1				1	1	0	1													1	2
40. Playing cards																										0	1	1	1																	1
43. Hats																														1	0	1													1	1
44. Banners																														3	1	4				1	0	1							5	5
45. Dog show prize ribbons.																														1	0	1													1	1
46. Medals																														0	1	1													1	1
47. Tin foil																																	0	1	1										1	1
48. Receipes																																	0	1	1										1	1
49. Crossword Puzzles																																				1	0	1							1	1
50. War implements																																				1	0	1							1	1
51. Cigar bands																																				1	0	1							1	1
52. Cigarette labels																																				1	0	1							1	1
53. Antiques																																				1	0	1							1	1
54. Keys																																				1	0	1				1	1	2	3	3
55. Motion picture reels.																																				1	0	1				0	1	1	2	2
56. Post cards																																				1	1	2							2	2
57. Bugs																																							1	0	1	1	0	1	2	2
58. Soap coupons																																							0	1	1				1	1
59. Baseballs																																										1	0	1	1	1
60. Locks																																										1	0	1	1	1
61. Boats																																										0	1	1	1	1
62. Gear shift knobs																																										0	1	1	1	1
63. Coat labels																																										0	1	1	1	1
Total pupils making collections.	2	3	5	7	4	11	4	9	13	5	5	10	2	5	7	46 30%	19	19	38	5	2	7	5	6	11	2	4	6	62 39%	18	7	25	2	3	5	17	8	25	2	3	5	7	10	17	77 41%	185 37%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

E. Things put in scrapbook.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Sports pictures	1	0	1				7	0	7	3	0	3	1	0	1	12	5	0	5				0	1	1				6	3	2	5				2	0	2	1	0	1	1	0	1	9	27
2. Pictures of movie stars	0	4	4				0	3	3	1	1	2	0	2	2	11	0	9	9	0	2	2	1	2	3	0	4	4	18	1	7	8	0	1	1	0	8	8	0	3	3	0	3	3	23	52
3. Cartoons	0	1	1													1	1	2	3										3	1	0	1				0	1	1							2	6
4. Baby pictures	0	1	1				0	1	1							2							0	1	1				1	0	2	2													2	5
5. War pictures	0	1	1													1														1	0	1													1	2
6. Current events	0	1	1										1	0	1	2	1	1	2	8	0	8							10										6	3	3				3	13
7. Animal pictures				1	0	1	1	1	2	0	1	1	0	3	3	7							0	1	1				1													0	1	1	1	9
8. Snapshots				1	0	1										1	1	0	1				0	1	1				2	0	1	1													1	4
9. Things to make				1	0	1										1																														1
10. Poems				1	1	2										2	0	3	3				0	1	1				4	1	1	2	1	0	1	1	0	1				0	1	1	5	11
11. Airplane pictures				1	0	1										1																							1	0	1	1	0	1	2	3
12. Pictures of scenery				0	1	1										1														0	1	1													1	2
13. Pictures of famous people.				0	1	1										1	0	1	1										1																	1
14. Pictures of birds							0	1	1							1																														1
15. Flower pictures							0	1	1							1																														1
16. Health pictures							0	1	1							1																														1
17. Automobile pictures							0	1	1							1	0	1	1										1																	2
18. Holy pictures							0	1	1							1																														1
19. Cowboy pictures													1	0	1	1																														1
20. Jokes																	1	0	1										1							0	1	1							1	2
21. Pictures of radio stars																	1	0	1										1																	1
22. Drawings																	1	0	1										1																	1
23. Good school work																	1	0	1										1										0	1	1				1	2
24. Historical pictures																	0	3	3										3																	3
25. Receipes																	0	1	1										1																	1
26. Stories																	0	1	1										1																	1
27. Pictures of house interiors																	0	1	1										1				0	1	1										1	2
28. Pictures of furniture																	0	1	1										1																	1
29. Pictures of children																	0	1	1				0	1	1				2	0	1	1													1	3
30. Pictures of food.																	0	1	1										1																	1
31. Pictures of buildings.																	0	1	1										1																	1
32. Leaves																	0	1	1										1																	1
33. Pressed flowers																	0	1	1										1																	1
34. Literary pictures																	0	1	1										1																	1
35. Musical pictures																	0	1	1										1																	1
36. Postal cards																				0	2	2							2	0	2	2	0	1	1	0	1	1							4	6
37. 4-H Club clippings																				0	1	1							1																	1
38. Songs																				0	1	1							1																	1
39. Pictures of faces																							0	1	1				1																	1
40. Pictures of clothes																														0	1	1				0	1	1							2	2
41. Writings																														0	1	1													1	1
42. Souvenirs																														0	1	1										1	0	1	2	2
43. Letters																														0	1	1				0	1	1							2	2
44. Addresses																																	0	1	1										1	1
45. Match covers																																	0	1	1										1	1
46. Miscellaneous pictures.				1	2	3	3	8	11	0	4	4				18	3	8	11				2	2	4				15	3	5	8	9	3	12	5	2	7	1	3	4	0	4	4	35	68
Total pupils having scrapbooks	2	7	9	6	4	10	4	18	22	8	7	15	5	6	11	67 44%	14	28	42	9	5	14	4	9	13	1	4	5	74 47%	12	20	32	9	8	17	8	13	21	5	8	13	4	8	12	95 50%	236 47%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

F. Things drawn or painted in spare time.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Animals	1	1	2	3	0	3	4	0	4	3	0	3	3	1	4	16	3	1	4	4	0	4	1	0	1	0	1	1	10	4	1	5				0	1	1	2	0	2	0	4	4	12	38
2. Soldiers	1	0	1													1																														1
3. Airplanes	1	0	1	2	0	2	4	1	5							8	2	0	2	3	0	3	3	0	3				8	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	5	21
4. Cartoons	1	0	1													1	1	0	1							0	2	2	3	2	0	2				5	2	7	2	0	2	1	0	1	12	16
5. Scenery	1	2	3	3	3	6	0	8	8	2	1	3				20	5	6	11	4	5	9	1	0	1	1	2	3	24	4	5	9	3	1	4	7	3	10	2	1	3	2	4	6	32	76
6. Designs	0	7	7	1	1	2	0	1	1							10	2	3	5				0	2	2				7							2	3	5							5	22
7. Faces	0	1	1	0	1	1	1	0	1	0	1	1				4	0	3	3				0	2	2				5	1	6	7	0	1	1	4	2	6	0	1	1	1	0	1	16	25
8. People	0	1	1	1	0	1	2	5	7	2	0	2	1	0	1	12	6	3	9	1	0	1	1	1	2	0	1	1	13	6	7	13	2	2	4	4	1	5	1	0	1	1	1	2	25	50
9. Houses				2	2	4	1	3	4	2	1	3				11	2	2	4	0	1	1	1	2	3				8							1	0	1	0	1	1	1	2	3	5	24
10. Boats				1	0	1	3	0	3	4	0	4				8	2	0	2	3	0	3	1	0	1				6	3	0	3	1	0	1				1	0	1	0	1	1	6	20
11. Trees				0	2	2										2							0	2	2				2																	4
12. Fairies				0	1	1										1																														1
13. Santa Claus				0	1	1	1	0	1							2																														2
14. Flowers				0	2	2	1	1	2				0	1	1	5	0	1	1										1				0	1	1				0	1	1				2	8
15. Cowboys							1	0	1				1	0	1	2				1	0	1							1	1	0	1													1	4
16. Sports							1	0	1	0	1	1				2	1	0	1										1	1	0	1				1	0	1	0	1	1				3	6
17. Indians							1	0	1							1	1	0	1	1	0	1							2																	3
18. Children							0	1	1	0	1	1				2							0	1	1				1																	3
19. Automobiles										1	0	1				1	1	0	1				1	0	1				2				2	0	2										2	5
20. Guns													1	0	1	1																														1
21. Printing																	2	1	3										3	1	3	4				1	0	1							5	8
22. Designing clothes																	0	1	1										1	0	2	2													2	3
23. Birds																	0	1	1										1							1	0	1							1	2
24. Scrapbook covers																	0	1	1										1																	1
25. Dolls																				1	0	1							1																	1
26. Trains																							1	0	1				1																	1
27. Paint book																							0	2	2				2	0	1	1				0	1	1							2	4
28. Buildings																							0	1	1				1																	1
29. Silhouettes																							0	1	1				1	0	1	1													1	2
30. Copy pictures																										0	1	1	1																	1
31. Still life																														1	0	1				2	0	2							3	3
32. House interiors																														1	0	1													1	1
33. Pencil Sketches																																				2	0	2							2	2
34. Designing Christmas cards																																				1	0	1	0	1	1				2	2
Total pupils drawing or painting in spare time	6	9	15	13	11	24	16	26	42	17	10	27	4	7	11	119 78%	32	34	66	14	7	21	8	12	20	1	5	6	113 72%	25	26	51	5	4	9	21	12	33	6	6	12	8	8	16	121 64%	353 71%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

TABLE 16 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH HOBBIES

G. Articles made by sewing	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Cross-stitched pattern	1	0	1	0	2	2										3																														3
2. Sewing bag	0	10	10	0	1	1	0	5	5							26	0	32	32	0	1	1							33	0	12	12													12	71
3. Clothespin bag	0	1	1													1																														1
4. Dolls clothes	0	2	2	0	4	4	0	6	6	0	5	5	0	3	3	20	0	7	7				0	2	2	0	2	2	11	0	2	2	0	1	1	0	1	1	0	2	2	0	1	1	7	38
5. Underwear	0	2	2	0	1	1	0	7	7							10	0	31	31	0	5	5							36	0	15	15	0	4	4	0	1	1	0	2	2				22	68
6. Baseball glove				1	0	1										1																											0	1	1	1	2
7. Pin cushion				1	0	1				0	2	2				3	0	1	1										1	0	1	1													1	5
8. Scarf				0	1	1										1	0	1	1										1																	2
9. Blouse				0	1	1										1	0	5	5				0	1	1				6	0	5	5	0	1	1	0	6	6				0	1	1	13	20
10. Apron				0	3	3							0	5	5	8	0	33	33	0	1	1	0	1	1	0	4	4	39	0	13	13	0	3	3	0	14	14	0	6	6	0	9	9	45	92
11. Pot-holder				0	2	2							0	1	1	3				0	2	2	0	2	2	0	1	1	5	0	2	2	0	1	1				0	1	1	0	1	1	5	13
12. Towel				0	1	1				0	1	1				2	1	0	1	0	2	2							3	0	1	1	0	2	2										3	8
13. Dress				0	3	3	0	1	1	0	2	2				6	0	5	5	0	6	6	0	1	1	0	1	1	13	0	22	22	0	2	2	0	3	3	0	5	5	0	7	7	39	58
14. Rag doll				0	1	1										1																														1
15. Hat				0	1	1										1																														1
16. Coat				0	1	1										1																														1
17. Mat							1	0	1							1																														1
18. Doilies							0	1	1							1							0	1	1				1																	2
19. Dust cloths							0	1	1							1																														1
20. Handkerchiefs							0	1	1							1				0	1	1							1				0	1	1										1	3
21. Pillow case							0	3	3							3																	0	2	2	0	1	1							3	6
22. Sail for a boat										1	0	1				1																							1	0	1				1	2
23. Christmas gifts										0	1	1				1							0	1	1				1																	2
24. Table cloth										0	1	1				1																	0	1	1	0	1	1							2	3
25. Napkins										0	1	1				1																	0	1	1										1	2
26. Luncheon Set													0	2	2	2				0	1	1				0	4	4	5										0	2	2				2	9
27. Bib													0	1	1	1																														1
28. Buttons sewed in place																	2	0	2										2													1	0	1	1	3
29. Pajamas																	0	5	5										5	0	1	1	0	1	1	0	1	1							3	8
30. Nightdress																	0	1	1										1																	1
31. Cap																	0	6	6										6																	6
32. Smock																	0	8	8										8																	8
33. Slacks																	0	1	1										1	0	2	2													2	3
34. Necktie																				0	1	1							1																	1
35. Laundry bag																				0	1	1							1																	1
36. Stuffed toy																				0	1	1							1	0	1	1													1	2
37. Bean bag																							1	1	2				2	1	0	1													1	3
38. Pillow																										0	1	1	1							0	1	1	0	1	1	0	1	1	3	4
39. A bag																														1	0	1													1	1
40. Holes in clothing																														1	0	1													1	1
41. Suit for little boy																														0	2	2				0	1	1							3	3
42. Shorts																														0	1	1	0	1	1	0	1	1							3	3
43. Skirt																														0	1	1													1	1
44. Sheet																														0	1	1				0	1	1							2	2
45. Table runners																														0	1	1	0	1	1	0	1	1							3	3
46. Spread																														0	1	1													1	1
47. Play suit																														0	1	1				0	1	1							2	2
Total pupils who like to sew	1	11	12	2	13	15	4	26	30	2	8	10	0	7	7	74 48%	8	39	47	0	8	8	0	7	7	0	1	1	63 40%	2	22	24	1	9	10	1	16	17	1	6	7	1	9	10	68 36%	205 41%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

H. Articles made with tools	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Utensil rack	4	0	4				4	0	4				3	0	3	11							5	0	5				5										2	0	2				2	18
2. Snow plow	1	0	1													1																														1
3. Tie rack	2	0	2				2	0	2				1	0	1	5	18	0	18				1	0	1	1	0	1	20	7	0	7				1	0	1	2	0	2	3	0	3	13	38
4. Boxes				1	0	1										1														3	0	3													3	4
5. Dog house				1	0	1										1				3	0	3							3																	4
6. Book case				2	0	2										2	5	1	6				0	1	1				7	5	0	5				1	0	1				1	1	2	8	17
7. Window shutter				1	0	1										1																														1
8. Model Airplanes				1	0	1				2	1	3				4	2	1	3	3	0	3	1	0	1	1	0	1	8	1	0	1	2	0	2	1	0	1	1	1	2	2	0	2	8	20
9. Boats				2	0	2	1	0	1	7	2	9				12	2	0	2	1	0	1	2	1	3	0	1	1	7	1	1	2	1	0	1	6	0	6	1	0	1	2	0	2	12	31
10. Chairs				1	0	1										1	3	0	3				0	2	2	1	0	1	6	0	1	1	1	0	1	5	0	5	0	1	1				8	15
11. Games				1	0	1										1																														1
12. Toys				1	0	1				0	1	1				2	1	0	1	1	0	1							2										1	0	1				1	5
13. Cart				1	0	1	1	0	1	1	0	1	1	0	1	4	2	0	2	1	0	1	1	0	1				4	2	0	2				1	0	1							3	11
14. Trailer				1	0	1										1																														1
15. Car				1	0	1										1																														1
16. Doll house				1	1	2										2				1	0	1							1																	3
17. Bird house				0	1	1	1	0	1	2	2	4	1	1	2	8				3	0	3	1	0	1	1	1	2	6	1	2	3	1	0	1	3	0	3	1	0	1	3	4	7	15	29
18. Sewing cabinet				0	1	1										1	2	0	2										2	2	0	2													2	5
19. Dolls furniture				0	1	1							0	1	1	2							0	2	2				2	0	2	2													2	6
20. Benches							2	0	2							2	0	1	1							1	0	1	2	1	0	1	1	0	1	2	0	2				1	0	1	5	9
21. Key rack							2	0	2							2																														2
22. Coat hanger							1	0	1							1																				1	0	1							1	2
23. Toothbrush holder							1	0	1							1																														1
24. Table							0	1	1	1	0	1				2	6	0	6				0	1	1	0	1	1	8	7	1	8				4	0	4	0	1	1	1	0	1	14	24
25. Camp							0	1	1							1														0	1	1													1	2
26. Gliders										2	0	2				2							1	0	1				1																	3
27. Stool										1	0	1				1	6	0	6	2	0	2							8	4	0	4	1	0	1	0	1	1	3	0	3	3	0	3	12	21
28. Desk										1	0	1				1				1	0	1							1																	2
29. Scooter										1	0	1				1																														1
30. Door stop										1	0	1				1							1	1	2				2	1	0	1				1	0	1	1	0	1				3	6
31. Truck										1	0	1				1																														1
32. Bookends										1	0	1				1	2	0	2										2	0	1	1										1	0	1	2	5
33. Magazine stand										1	0	1				1	2	0	2										2	4	0	4													4	7
34. Flower pot stand													2	0	2	2																														2
35. Tool house													1	0	1	1														1	0	1													1	2
36. Silver tray																	1	0	1										1										1	0	1	1	0	1	2	3
37. Bird feeding station																	1	0	1				3	0	3				4													1	0	1	1	5
38. Coat rack																	15	0	15										15																	15
39. Nail box																	9	0	9										9																	9
40. Saw horse																	1	0	1										1																	1
41. Hockey stick																	1	0	1										1																	1
42. Shoe box																	1	0	1										1																	1
43. End table																	3	0	3										3	3	0	3													3	6
44. Pencil tray																	7	0	7										7	0	1	1													1	8
45. Wooden gun																	1	0	1										1																	1
46. Bobsled																	1	0	1										1																	1
47. Shingled playhouse																	0	1	1										1																	1
48. Block prints																	0	2	2										2																	2
49. Puppets																	0	1	1										1																	1
50. Cabins																				1	0	1							1																	1
51. Wheelbarrow																				0	1	1							1																	1
52. Boomerang																							1	0	1				1																	1
53. Trains																							1	0	1				1																	1
54. Letter opener																							0	1	1				1																	1
55. Leather desk set																							0	1	1				1	1	0	1													1	2
56. Book mark																										0	1	1	1																	1
57. Scenery for plays																										0	1	1	1																	1
58. Buttons																										0	1	1	1																	1
59. A swing																										0	1	1	1																	1
60. Smoking stand																														1	0	1													1	1
61. Radio cabinet																														1	0	1													1	1
62. Spool holder																														1	0	1													1	1
63. Medicine cabinet																														2	0	2				1	0	1							3	3
64. Corner shelves																														2	0	2				1	0	1							3	3
65. Bird bath																														0	1	1													1	1
66. Paddles																																	1	0	1										1	1
67. Lawn dogs																																	1	0	1										1	1
68. Wastebasket																																				1	0	1							1	1
69. Knife sharpener																																				3	0	3							3	3
70. Pencil sharpener																																				2	0	2							2	2
71. Spoonholder																																				1	0	1							1	1
72. Basketball stand																																				1	0	1							1	1
73. Sleeve board																																							1	0	1				1	1
74. Cutting board																																							1	0	1				1	1
75. Letter holder																																							1	0	1				1	1
76. Tool chest																																							1	0	1				1	1
77. Radio																																										1	0	1	1	1
78. Flower boxes																																										1	0	1	1	1
79. Curtain pulls.																																										0	1	1	1	1
Total pupils who like to work with tools	8	0	8	14	6	20	22	8	30	17	4	21	8	2	10	89 58%	46	10	56	15	2	17	10	8	18	3	5	8	99 63%	33	15	48	5	1	6	23	1	24	9	3	12	12	5	17	107 56%	295 59%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

TABLE 16 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH HOBBIES

I. Type of radio program liked best.	6th Grade Town A			Town C			Town D			Town F			Town G			6th Grade Totals	7th Grade Town A			Town B			Town F			Town G			7th Grade Totals	8th Grade Town A			Town B			Town E			Town F			Town G			8th Grade Totals	TOTAL.
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Children's programs	3	2	5							0	1	1	3	0	3	9	1	0	1				0	2	2				3	0	1	1	0	1	1				0	2	2				4	16
2. Spelling bees	1	0	1													1																														1
3. Questions and answers	1	0	1													1														0	1	1													1	2
4. Mystery	2	0	2	1	1	2	6	5	11	3	0	3	1	2	3	21	8	9	17	2	1	3	0	3	3				23	4	5	9	3	2	5	1	0	1	2	1	3	3	0	3	21	65
5. Stories	2	1	3	2	0	2										5	0	7	7	0	4	4							11	3	8	11							1	0	1				12	28
6. Comedy	0	4	4	3	3	6	0	4	4	0	4	4	3	1	4	22	9	7	16	4	0	4	3	2	5	2	2	4	29	15	4	19	1	2	3	17	5	22	1	2	3	3	1	4	51	102
7. Adventure	0	3	3	1	4	5	0	4	4	3	1	4	3	1	4	20	11	8	19	7	2	9	3	2	5				33	7	2	9	5	1	6	6	1	7	1	2	3	7	0	7	32	85
8. Drama	0	1	1	0	3	3				2	1	3	3	1	4	11	9	3	12	4	1	5	0	3	3	0	3	3	23	7	4	11	0	4	4	16	11	27	1	0	1	3	11	14	57	91
9. Variety	0	2	2	3	2	5	17	12	29							36	5	2	7	0	2	2	1	1	2	0	1	1	12	1	5	6	0	3	3	9	7	16	1	0	1				26	74
10. Cowboy	0	1	1	3	0	3	2	0	2	6	0	6	1	2	3	15	3	1	4	2	0	2	4	0	4				10	1	3	4	1	2	3				2	1	3				10	35
11. Music				1	5	6	0	4	4	0	3	3				13	5	8	13	2	1	3	3	6	9	1	4	5	30	9	6	15	0	1	1	9	4	13	4	6	10	1	5	6	45	88
12. News										1	0	1				1	0	1	1	2	0	2							3	0	1	1							0	1	1				2	6
13. Fights										0	1	1				1																														1
14. Sports																	10	0	10										10	4	0	4	2	0	2	6	0	6	1	0	1				13	23
15. Detective																	3	1	4							0	1	1	5	2	0	2							1	0	1	0	1	1	4	9
16. Serials																	1	0	1										1										1	0	1				1	2
17. Historical																	0	2	2										2	1	0	1	0	2	2										3	5
18. Dancing																							0	1	1				1																	1
19. Educational																														1	0	1				1	0	1							2	2
20. Opera																														0	1	1				2	0	2							3	3
21. Amateur																																							1	0	1				1	1
Total pupils who enjoy the radio.	8	11	19	15	13	28	22	28	50	18	10	28	10	9	19	144 94%	45	43	88	17	10	27	11	14	25	2	6	8	148 94%	39	31	70	9	10	19	28	17	45	13	10	23	13	14	27	184 97%	476 95%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

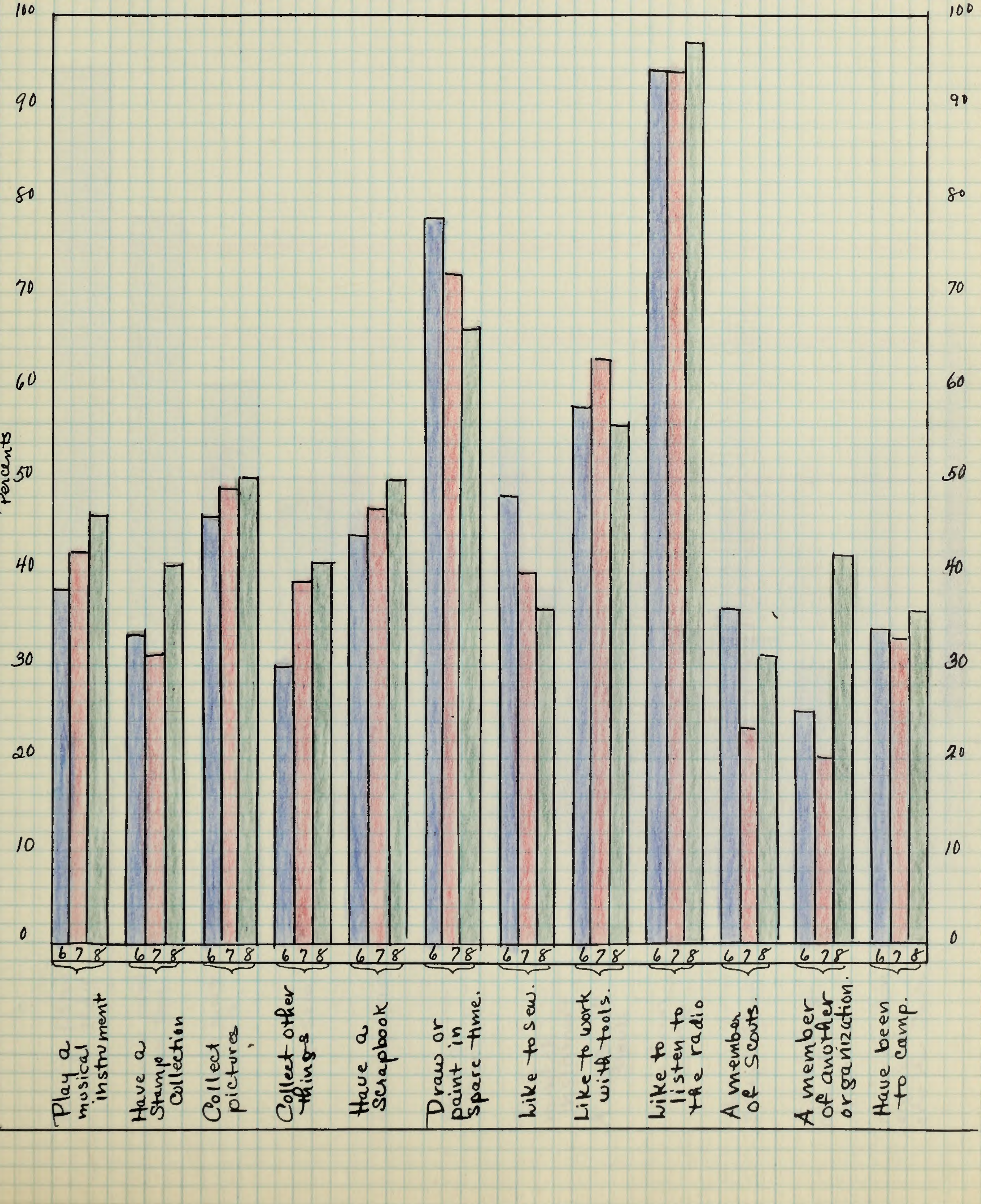
J. Organizations other than Scouts to which pupils belong.	6th Grade Town A			Town C			Town D			Town F			Town G			6th Grade Totals	7th Grade Town A			Town B			Town F			Town G			7th Grade Totals	8th Grade Town A			Town B			Town E			Town F			Town G			8th Grade Totals	TOTAL
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Open Road for Boys	1	0	1													1														1	0	1													1	2
2. Sons of American Legion				1	0	1	1	0	1	1	0	1				3				1	0	1							1	2	0	2	1	0	1	2	0	2	2	0	2				7	11
3. A boys' club				2	0	2							1	0	1	3	1	0	1	2	0	2							3	5	0	5				6	0	6	1	0	1	2	0	2	14	20
4. 4-H Sewing club				0	1	1							0	1	1	2				0	3	3							3				0	2	2							0	3	3	5	10
5. Dancing School				0	3	3	0	2	2	0	1	1				6																														6
6. Choir							1	5	6							6																														6
7. Police							1	0	1							1																														1
8. A girls' club							0	3	3				0	1	1	4	0	1	1				0	1	1				2							0	8	8							8	14
9. Christian Endeavor							0	3	3							3																														3
10. Juvenile Grange										5	4	9				9							0	4	4				4										1	0	1				1	14
11. Audubon Club													0	1	1	1										0	1	1	1													0	1	1	1	3
12. Jr. Birdmen of America																	1	0	1										1													1	0	1	1	2
13. Y.M.C.A.																	1	0	1										1	1	0	1													1	2
14. Campfire Girls																	0	11	11										11	0	8	8													8	19
15. 4-H Poultry Club																				1	0	1							1	1	0	1	1	0	1										2	3
16. Church																							1	0	1				1	1	0	1							1	4	5				6	7
17. Country Club																										1	0	1	1																	1
18. Tennis Club																										0	1	1	1																	1
19. Sir Galahad																														1	0	1													1	1
20. Young People's Fellowship																														0	1	1													1	1
21. Log Cabin Girls																														0	2	2													2	2
22. Civics Club																																	3	2	5										5	5
23. Garden Club																																	1	0	1										1	1
24. Community Service Club																																	1	0	1										1	1
25. Red Cross																																				1	0	1				0	1	1	2	2
26. Science Club																																				1	0	1	1	0	1				2	2
27. A Band																																				1	0	1							1	1
28. An Orchestra																																				2	0	2							2	2
29. Harmonica band																																				1	0	1							1	1
30. Sunday school																																							2	0	2				2	2
31. Friendly Indians																																							1	0	1				1	1
32. Handicraft Club																																							0	1	1				1	1
Total pupils belonging to organizations besides Scouts	1	0	1	3	4	7	3	13	16	6	5	11	1	3	4	39 25%	3	12	15	4	3	7	1	5	6	1	2	3	31 20%	13	11	24	7	4	11	14	8	22	9	5	14	3	5	8	79 42%	149 30%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

K. Things pupils like best to do in their spare time.	6th Grade Town A			Town C			Town D			Town F			Town G			6th Grade Totals	7th Grade Town A			Town B			Town F			Town G			7th Grade Totals	8th Grade Town A			Town B			Town E			Town F			Town G			8th Grade Totals	TOTAL
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Help at home	1	1	2				1	1	2							4	2	2	4	1	0	1	0	3	3				8	0	1	1							0	1	1				2	14
2. Play games	2	4	6	1	4	5	3	5	8	4	4	8	1	1	2	29	15	8	23	3	0	3	2	9	11				37	11	2	13	0	1	1	10	1	11	2	4	6	1	2	3	34	100
3. Woodworking	1	0	1													1	3	0	3										6													0	1	1	1	8
4. Skate	1	0	1	0	1	1	1	1	2	1	0	1				5	3	5	8	4	1	5	2	2	4				17	4	1	5	1	2	3	3	2	5				1	1	2	15	37
5. Football	1	0	1				2	0	2							3				1	0	1							1							2	0	2				2	0	2	4	8
6. Baseball	2	0	2													2				1	0	1				0	3	3	4													3	1	4	4	10
7. Read	1	5	6	1	6	7	3	11	14	3	3	6	5	5	10	43	9	17	26	2	5	7	2	6	8	2	4	6	47	12	15	27	2	8	10	7	7	14	4	3	7	5	6	11	69	159
8. Paint	1	3	4	0	2	2	0	3	3	0	2	2	1	2	3	14	1	1	2										2	1	2	3				1	1	2				0	1	1	6	22
9. Listen to the radio	1	1	2	1	2	3	0	3	3				1	0	1	9	1	3	4	0	1	1	2	1	3	0	3	3	10	0	4	4	0	1	1	3	3	6	1	0	1	1	2	3	15	34
10. Farming	1	0	1													1	0	1	1										1																	2
11. Draw	0	4	4	1	5	6	4	5	9	7	0	7	1	3	4	30	9	10	19	0	1	1	2	1	3	1	1	2	25	0	5	5	2	0	2	5	3	8	1	5	6	0	4	4	25	80
12. Work	0	1	1	1	0	1										2	4	1	5										5	1	0	1				3	1	4							5	12
13. Hike				2	0	2	2	1	3				2	0	2	7	1	2	3	3	2	5	1	0	1				9	5	4	9	0	1	1	1	0	1	0	1	1	0	2	2	14	30
14. Ride a bicycle				1	1	2				1	0	1	2	0	2	5	3	1	4	1	0	1	3	0	3				8	3	1	4	1	1	2	2	1	3				2	3	5	14	27
15. Carpenter work				3	0	3	1	0	1	2	0	2				6	1	0	1				1	0	1				2	3	0	3	2	0	2	2	0	2	2	0	2	3	0	3	12	20
16. Knit				0	1	1	0	1	1							2	0	1	1	0	1	1							2							0	4	4				0	5	5	9	13
17. Sew				0	3	3	0	6	6				0	3	3	12	1	13	14				0	5	5	0	1	1	20	0	4	4	0	2	2	0	8	8				0	2	2	16	48
18. Dance				0	2	2										2	1	2	3										3							0	1	1							1	6
19. Play dolls				0	2	2										2																														2
20. Sing				0	1	1										1	1	0	1										1	0	2	2	0	1	1	0	1	1	0	1	1				5	7
21. Swim				0	1	1				1	0	1				2	3	3	6	4	1	5	1	1	2	0	1	1	14				1	1	2	1	0	1				1	0	1	4	20
22. Slide				0	1	1										1	0	3	3	1	0	1							4	1	1	2				1	1	2							4	9
23. Make Christmas cards				0	1	1										1																														1
24. Clay modeling							1	0	1							1																														1
25. Ski							1	0	1							1	3	2	5	3	0	3							8	1	0	1	1	1	2	1	0	1							4	13
26. Hunt							1	0	1							1														2	0	2										1	0	1	3	4
27. Fish							1	0	1							1	1	0	1	1	0	1							2	1	0	1										2	0	2	3	6
28. Do school work							1	1	2							2	1	1	2										2				1	0	1										1	5
29. Play a musical instrument							1	3	4							4	1	7	8	1	3	4							12	0	4	4	1	1	2	4	2	6	0	2	2	0	1	1	15	31
30. Write							0	1	1	0	1	1				2	1	2	3										3	0	1	1	0	1	1	0	1	1							3	8
31. Go to the movies																	1	0	1				1	0	1	0	1	1	3							1	0	1	1	0	1	2	0	2	4	7
32. Sail a boat																	1	0	1										1																	1
33. Work on stamps																	1	0	1										1							0	2	2	2	0	2				4	5
34. Make puppets																	0	1	1										1																	1
35. Cut and paste pictures																	0	3	3	1	0	1							4							0	1	1	0	3	3	0	1	1	5	9
36. Crochet																	0	2	2										2				0	1	1	0	1	1							2	4
37. Write jingles and music																	0	1	1										1																	1
38. Play cards																	0	1	1										1																	1
39. Play ping-pong																	0	1	1										1																	1
40. Care for children																	0	2	2										2																	2
41. Play hockey																				1	0	1							1																	1
42. Box																				1	0	1							1																	1
43. Wrestle																				1	0	1							1	1	0	1													1	2
44. Experiment																										1	0	1	1	1	0	1				2	0	2	3	0	3				6	7
45. Shoot																														1	0	1										1	0	1	2	2
46. Play golf																														1	0	1													1	1
47. Print																														1	1	2													2	2
48. Visit friends																														0	1	1													1	1
49. Play tennis																																				1	0	1							1	1
50. Develop pictures																																				2	0	2							2	2
51. Sell books																																							1	0	1				1	1
52. Trap																																										1	0	1	1	1
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

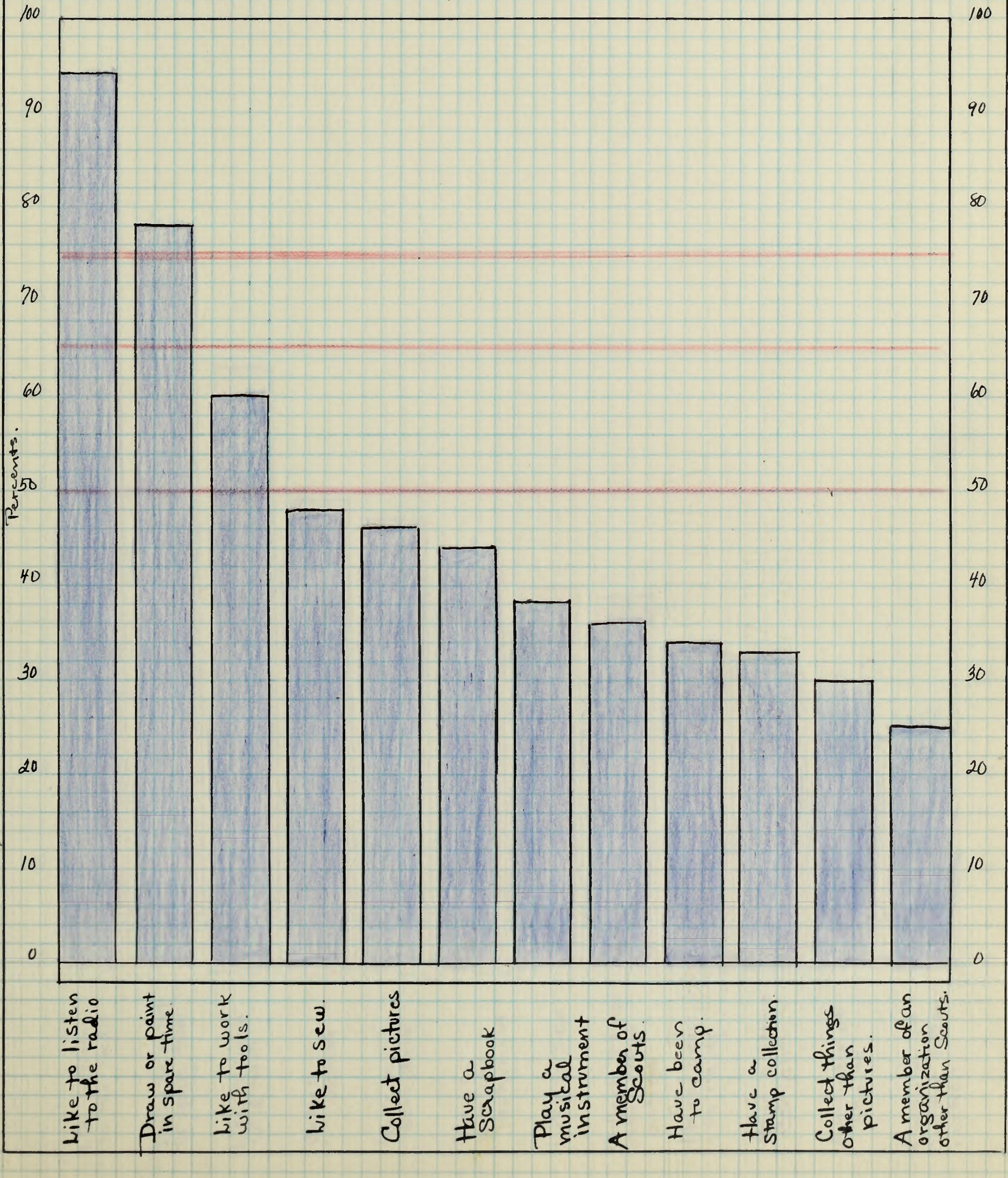
TABLE 16 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH HOBBIES.

L. Things pupils like best to do in vacations.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Woodworking	1	0	1							1	0	1				2																														2
2. Go to the beach.	1	0	1	0	1	1	1	2	3							5	1	1	2	0	1	1	0	1	1	0	1	1	5							0	1	1				0	1	1	2	12
3. Make boats.	1	0	1													1																														1
4. Sail boats	1	0	1													1							1	0	1				1	1	0	1										1	0	1	2	4
5. Swim	2	7	9	4	6	10	9	16	25	4	2	6	2	7	9	59	23	33	56	13	13	26	4	6	10	3	2	5	97	21	22	43	4	6	10	15	10	25	2	6	8	4	5	9	95	251
6. Play games	1	3	4	3	4	7	0	4	4	5	6	11	1	0	1	27	8	5	13	1	0	1	2	6	8	0	1	1	23	9	7	16	1	0	1	5	3	8	3	1	4	1	3	4	33	83
7. Go camping	2	0	2	1	0	1				3	0	3	1	0	1	7	7	3	10	1	0	1	1	0	1	0	1	1	13	2	0	2				1	0	1	2	0	2				5	25
8. Fish	1	0	1				1	1	2							3	4	0	4	2	0	2	1	1	2	0	1	1	9	6	1	7				7	3	10	1	0	1	2	1	3	21	33
9. Hunt	2	0	2	1	0	1	1	0	1							4	2	0	2										2	1	0	1				3	0	3				1	0	1	5	11
10. Skate	1	1	2				2	5	7	1	0	1	0	2	2	12	2	7	9	1	3	4	1	4	5				18	3	3	6	3	6	9	2	1	3	0	2	2	0	2	2	22	52
11. Slide	1	0	1				1	3	4							5	0	3	3	0	1	1	0	1	1				5	0	1	1	2	1	3	0	2	2	0	1	1				7	17
12. Farming	1	0	1													1														3	0	3							1	0	1				4	5
13. Ride horseback	0	1	1	1	0	1	0	1	1				0	1	1	4	1	2	3				0	1	1				4	3	1	4	0	1	1							0	1	1	6	14
14. Visit friends	0	1	1	0	1	1	0	2	2	0	1	1				5	1	1	2	2	0	2	1	1	2	0	1	1	7	1	1	2	0	1	1	4	0	4	0	1	1				8	20
15. Boating	0	1	1				2	0	2	1	0	1				4	5	3	8	2	1	3				1	0	1	12	3	2	5				0	1	1				0	2	2	8	24
16. Travel				2	1	3	1	0	1				0	1	1	5	3	8	11	0	4	4	2	0	2	0	3	3	20	0	4	4	1	0	1	1	0	1	2	4	6	1	2	3	15	40
17. Use tools				1	0	1	1	0	1							2																	1	0	1										1	3
18. Hike				0	1	1	0	2	2	1	1	2	1	0	1	6	6	5	11	2	1	3	0	1	1				15	5	2	7	0	1	1	2	2	4	4	1	5	3	3	6	23	44
19. Ride a bicycle				0	1	1							1	0	1	2	2	3	5	1	0	1	1	0	1	1	0	1	8	1	2	3				1	0	1				1	1	2	6	16
20. Sew				0	1	1										1														0	1	1	0	1	1										2	3
21. Play baseball							1	0	1				1	0	1	2																	2	1	3				1	1	2	1	0	1	6	8
22. Go on picnics							2	0	2				0	1	1	3														1	0	1										0	2	2	3	6
23. Play tennis							1	0	1				1	0	1	2	1	3	4							1	1	2	6	1	2	3	0	1	1	1	1	2	0	1	1	0	1	1	8	16
24. Work							0	1	1	1	0	1				2	5	0	5	1	0	1							6	2	0	2	0	1	1				1	0	1				4	12
25. Play a musical instrument							0	1	1							1																										0	1	1	1	2
26. Ski							0	1	1				0	1	1	2	3	4	7	0	1	1				1	0	1	9	1	2	3	1	2	3										6	17
27. Draw							0	1	1							1																										0	1	1	1	2
28. Play foot ball										1	0	1				1																	1	0	1										1	2
29. Go to the movies										0	3	3	0	1	1	4	1	2	3				2	0	2				5	0	3	3													3	12
30. Play golf													1	0	1	1																														1
31. Pick berries																	1	1	2										2	0	1	1													1	3
32. Pick flowers																	0	1	1										1																	1
33. Care for children																	0	1	1				0	1	1				2	0	1	1													1	3
34. Help at home																	0	2	2				0	1	1				3																	3
35. Read																	0	2	2				0	2	2				4	2	1	3				1	1	2				0	1	1	6	10
36. Listen to the radio																	0	1	1										1																	1
37. Shoot at a target																														1	0	1													1	1
38. Go to the circus																														0	1	1													1	1
39. Swing																																	1	0	1										1	1
40. Crochet																																	0	1	1										1	1
41. Go to baseball games																																				0	1	1							1	1
42. Build camps																																							1	0	1				1	1
43. Paint																																										0	1	1	1	1
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

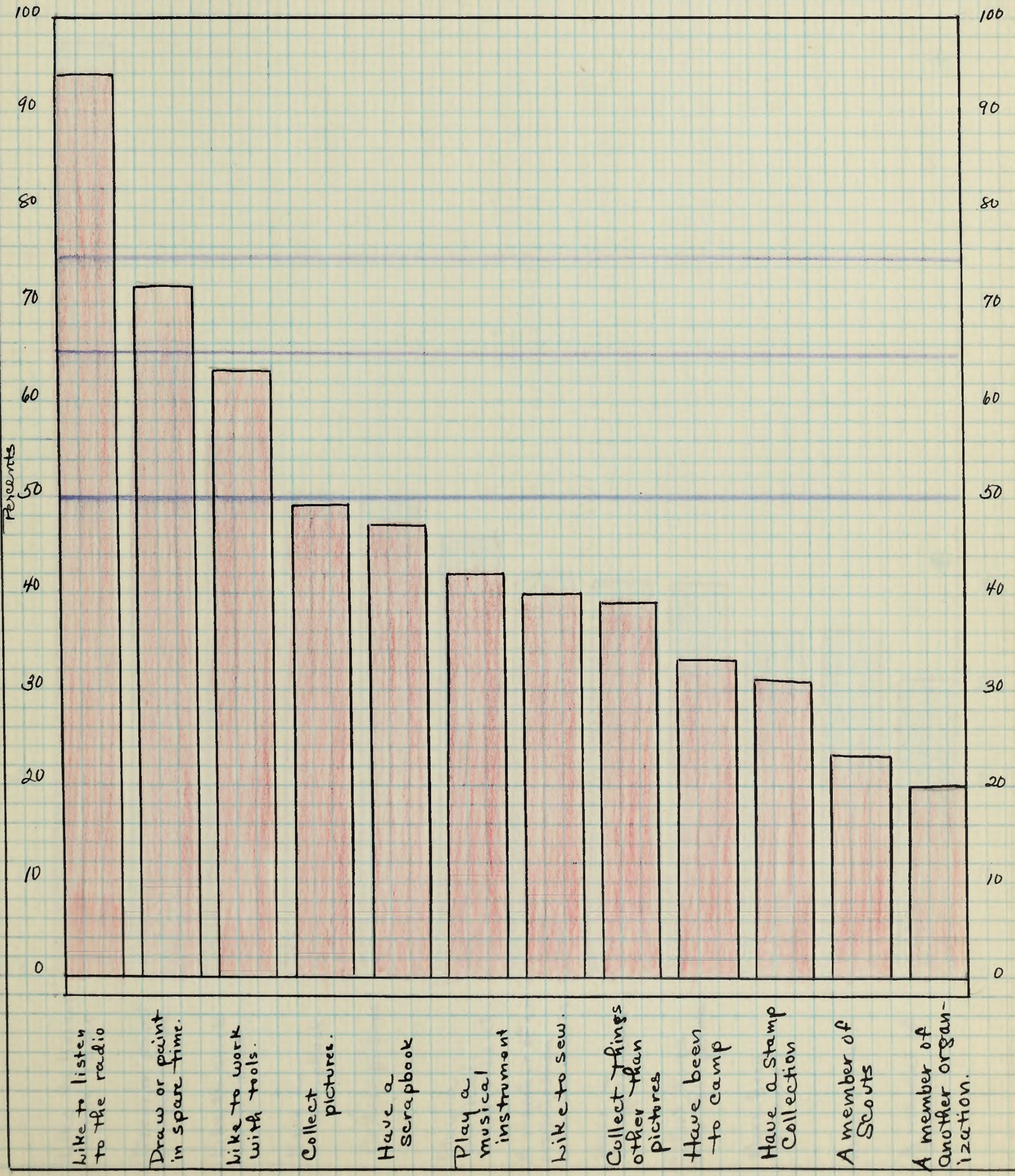
GRAPH 17 - SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 WHO HAVE HAD CERTAIN HOBBY EXPERIENCES.



GRAPH 18 - SHOWING THE HOBBY EXPERIENCES OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 19 - SHOWING THE HOBBY EXPERIENCE OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 20 - SHOWING THE HOBBY EXPERIENCE OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

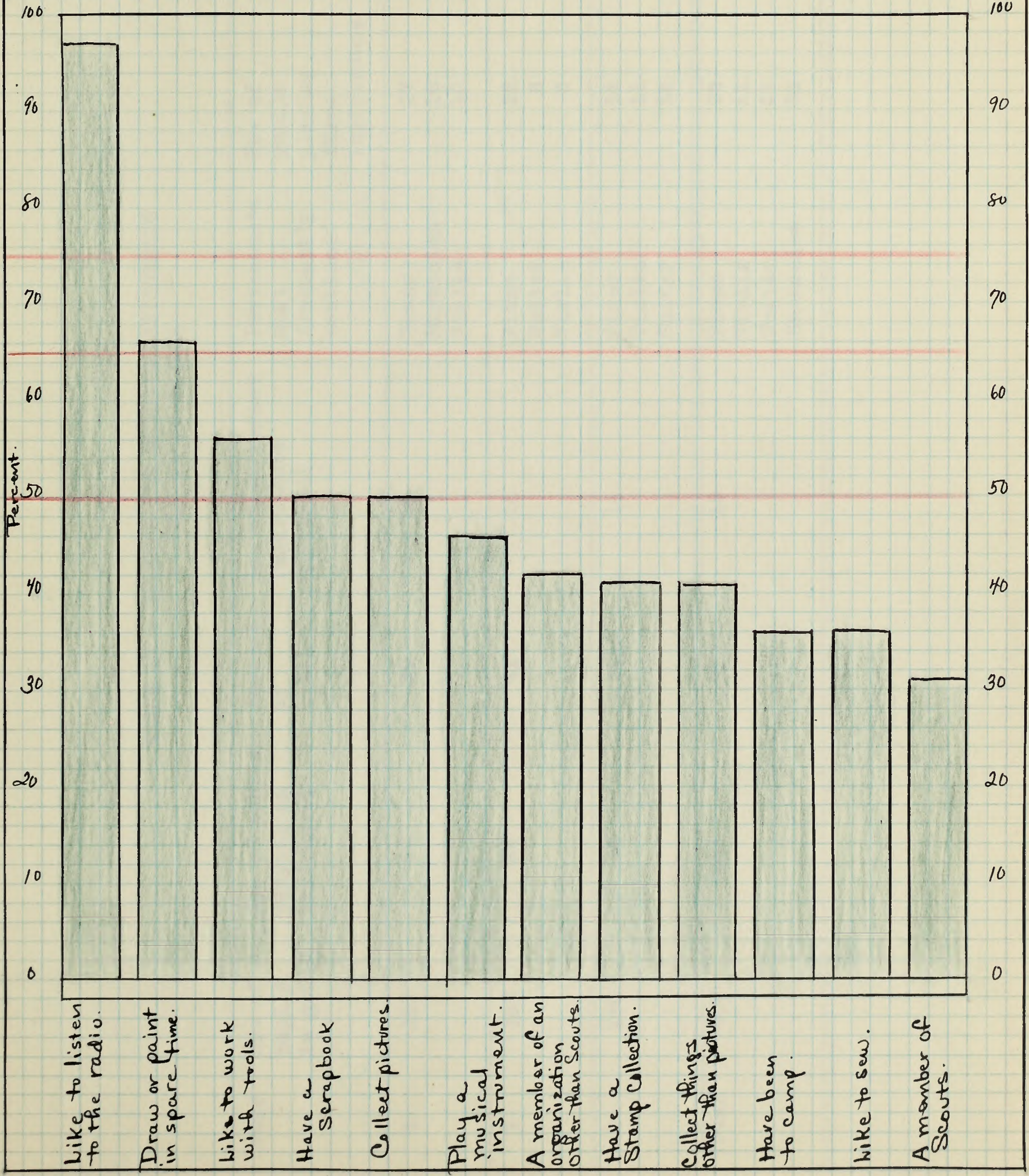


TABLE 17 - SHOWING THE MUSICAL INSTRUMENTS PLAYED BY PUPILS

Grade	No. of pupils in grade	No. of pupils playing an instrument	Percent of total	No. of different instruments mentioned	Instruments most frequently mentioned	No. of pupils playing these instruments	Percent of those playing instruments
6	153	59	39	12	Piano	27	46
					Harmonica	10	17
					Violin	10	17
7	157	64	41	15	Piano	29	45
					Guitar	8	13
					Violin	8	13
8	190	84	44	14	Piano	36	43
					Violin	13	15
					Guitar	12	14
Total	500	207	41	19	Piano	92	44
					Violin	31	15
					Guitar	25	12
					Harmonica	25	12

TABLE 18 - SHOWING THE KINDS OF PICTURES COLLECTED BY PUPILS

Grade	No. of pupils in grade	No. of pupils collecting pictures	Percent of total	No. of different kinds of pictures collected	Types of pictures collected most frequently	No. of pupils collecting these types of pictures	Percent of those collecting pictures
6	153	70	46	18	Sports	18	26
					Movie Stars	16	23
					Animals	14	20
7	157	77	49	28	Movie Stars	25	32
					Sports	18	23
8	190	95	50	20	Movie Stars	47	49
					Sports	17	18
					Snapshots	10	11
Total	500	242	48	36	Movie Stars	88	36
					Sports	53	22
					Animals	28	12

TABLE 19 - SHOWING WHAT THINGS OTHER THAN PICTURES PUPILS COLLECT

Grade	No. of pupils in grade	No. of pupils making collections	Percent of total	No. of different things collected	Items most frequently collected	No. of pupils collecting these things	Percent of those making collections
6	153	46	30	27	Stones	6	13
					Toy animals	4	9
					Match covers	4	9
7	157	62	39	27	Stones	7	11
					Toy animals	7	11
					Books	6	10
8	190	77	41	42	Coins	6	8
					Flowers	6	8
					Match covers	5	6
					Banners	5	6
Total	500	185	37	63	Stones	17	9
					Toy animals	15	8
					Match covers	14	8

TABLE 20 - SHOWING THE THINGS PUPILS PUT IN SCRAPBOOKS

Grade	No. of pupils in grade	No. of pupils having scrapbooks	Percent of total	No. of things pupils put in scrapbooks	Items most frequently mentioned	No. of pupils saving these articles	Percent of those having scrapbooks
6	153	67	44	19	Sports pictures	12	18
					Pictures of movie stars	11	16
					Animal pictures	7	10
7	157	74	47	30	Pictures of movie stars	18	24
					Current events	10	14
					Sports pictures	6	8
8	190	95	50	22	Pictures of movie stars	23	24
					Sports pictures	9	9
					Poems	5	5
Total	500	263	47	46	Pictures of movie stars	52	20
					Sports pictures	27	10
					Current events	13	5

TABLE 21 - SHOWING THE THINGS PUPILS DRAW OR PAINT IN THEIR SPARE TIME

Grade	No. of pupils in grade	No. of pupils who draw or paint in their spare time	Percent of total	No. of things pupils draw or paint	Items most frequently drawn or painted	No. of pupils mentioning these things	Percent of those drawing or painting
6	153	119	78	20	Scenery	20	17
					Animals	16	13
					People	12	10
7	157	113	72	26	Scenery	24	21
					People	13	12
					Animals	10	9
8	190	121	64	22	Scenery	32	26
					People	25	21
					Faces	16	13
Total	500	353	71	34	Scenery	76	22
					People	50	14
					Animals	38	11

TABLE 22 - SHOWING THE ARTICLES PUPILS HAVE MADE BY SEWING

Grade	No. of pupils in grade	No. of pupils who like to sew	Percent of total	No. of articles made by sewing	Articles most frequently mentioned	No. of pupils mentioning these articles	Percent of those who like to sew
6	153	74	48	27	Sewing bag	26	35
					Dolls' clothes	20	27
					Underwear	10	14
7	157	63	40	25	Apron	39	62
					Underwear	36	57
					Sewing bag	33	52
8	190	68	36	31	Apron	45	66
					Dress	39	58
					Underwear	22	32
Total	500	205	41	47	Apron	92	47
					Sewing bag	71	35
					Underwear	68	33

TABLE 23 - SHOWING THE ARTICLES PUPILS HAVE MADE BY USING TOOLS

Grade	No. of pupils in grade	No. of pupils who like to use tools	Percent of total	No. of articles made by using tools	Articles most frequently mentioned	No. of pupils mentioning these articles	Percent of those who like to use tools
6	153	89	58	35	Boats	12	13
					Utensil rack	11	12
					Bird house	8	9
7	157	99	63	45	Tie rack	20	20
					Bird feeding station	15	15
					Coat rack	9	9
8	190	107	56	46	Bird house	15	14
					Table	14	13
					Tie rack	13	12
Total	500	295	59	79	Tie rack	38	13
					Boats	31	11
					Bird house	29	10

TABLE 24 - SHOWING THE TYPE OF RADIO PROGRAM PUPILS LIKE BEST

Grade	No. of pupils in grade	No. of pupils who enjoy the radio	Percent of total	No. of different types of programs mentioned	Types of programs mentioned most frequently	No. of pupils mentioning these types	Percent of those who enjoy the radio
6	153	144	94	13	Variety Shows	36	25
					Comedy	22	15
					Mystery	21	15
7	157	148	94	15	Adventure	33	22
					Music	30	20
					Comedy	29	20
8	190	184	97	18	Drama	57	31
					Comedy	51	28
					Music	45	24
Total	500	476	95	21	Comedy	102	21
					Drama	91	19
					Music	88	18

TABLE 25 - SHOWING THE ORGANIZATIONS TO WHICH PUPILS BELONG OTHER THAN SCOUTS

Grade	No. of pupils in grade	No. of pupils belonging to organizations other than Scouts	Percent of total	No. of different organizations mentioned	Organizations most frequently mentioned	No. of pupils mentioning these organizations	Percent of those belonging to organizations other than Scouts
6	153	39	25	11	Juvenile Grange	9	23
					Choir	6	15
					Dancing School	6	15
7	157	31	20	13	Campfire Girls	11	35
					Juvenile Grange	4	13
					A boys' club	3	10
					4-H Sewing Club	3	10
8	190	79	42	26	A boys' club	14	18
					A girls' club	8	10
					Campfire Girls	8	10
Total	500	149	30	32	A boys' club	20	13
					Campfire Girls	19	13
					A girls' club	14	9
					Juvenile Grange	14	9

TABLE 26 - SHOWING THE THINGS PUPILS LIKE BEST TO DO IN THEIR SPARE TIME

Grade	No. of pupils in grade	No. of different activities mentioned	Activities most frequently mentioned	No. of pupils mentioning these activities	Percent of pupils in the grade
6	153	30	Read	43	28
			Draw	30	20
			Play games	29	19
7	157	40	Read	47	29
			Play games	37	24
			Draw	25	16
8	190	40	Read	69	36
			Play games	34	18
			Draw	25	13
Total	500	52	Read	159	32
			Play games	100	20
			Draw	80	16

TABLE 27 - SHOWING THE THINGS PUPILS LIKE BEST TO DO DURING THEIR VACATIONS

Grade	No. of pupils in grade	No. of different activities mentioned	Activities most frequently mentioned	No. of pupils mentioning these activities	Percent of pupils in the grade
6	153	30	Swim	59	39
			Play games	27	18
			Skate	12	8
7	157	25	Swim	97	62
			Play games	23	15
			Travel	20	13
8	190	37	Swim	95	50
			Play games	33	17
			Hike	23	12
Total	500	43	Swim	251	50
			Play games	83	17
			Skate	52	10

G. Data on Pets.-- Table 28 is a summary table of all the data on pets secured through the questionnaire. It has been simplified in the tables and graphs which follow.

Graph 21 shows the percentage of pupils in the three grades having an interest in or experience with pets. None of the items show an increase for each grade. 48% of the pupils in grades 6 and 7 have a dog at home, while in grade 8, 41% have dogs. Caring for the dog is a duty of 25% of the sixth grade, 32% of the seventh grade and 29% of the eithth grade. Comparing these figures with those who have dogs, it is seen that only about half of those having dogs have any duties in caring for them. The same is true of cats with 61% of the sixth grade having cats at home, 55% of the seventh grade and 57% of the eighth grade. However, only 37% of the sixth grade have duties in caring for the cat, 32% of the seventh grade, and 33% of the eighth grade. Rabbits appear to be a pet with which pupils of these grades have had experience. In grade 6, 49% have owned rabbits, in grade 7, 57%, and in grade 8, 46 %. 14% of grade 6 have owned guinea pigs, and 10% of grades 7 and 8. Raising pets has been experiences by 67% of the sixth grade, 55% of the seventh grade, and 50% of the eighth grade. Selling pets has been experienced by only a few, 18% in grade 6, 15% in grade 7, and 23% in grade 8.

Graph 22 shows on a descending scale the experiences with pets of pupils in grade 6. Only two reach a standard, 67% having raised pets and 61% having a cat at home.

Three experiences with pets reach a standard in the seventh grade as is shown in graph 23. 57% have owned rabbits, 53% have a cat at home, and the same percent have raised pets.

In graph 24 is shown the experiences with pets of pupils in the eighth grade. Two reach a standard, 57% having a cat at home and 50% having raised pets.

Tables 29 through 35 give detailed information on pets. These tables simplify and put in more usable form the information found in table 28.

TABLE 28- SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH PETS.

A. Experiences with pets.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Have a dog at home	2	7	9	7	4	11	11	12	23	13	7	20	7	3	10	73 48%	20	20	40	11	6	17	7	5	12	3	4	7	76 48%	18	13	31	5	6	11	9	3	12	7	4	11	7	6	13	78 41%	227 45%
2. Have duties caring for it.	1	1	2	5	3	8	8	5	13	7	4	11	5	0	5	39 25%	13	10	23	10	4	14	7	2	9	3	2	5	51 32%	14	6	20	3	3	6	10	2	12	6	2	8	5	5	10	56 29%	146 29%
3. Have a cat at home.	7	10	17	10	7	17	12	14	26	12	9	21	7	5	12	93 61%	21	23	44	13	6	19	8	10	18	2	3	5	86 55%	22	20	42	7	6	13	12	8	20	7	9	16	7	11	18	109 57%	288 58%
4. Have duties caring for it.	4	5	9	8	7	15	6	7	13	5	6	11	4	4	8	56 37%	14	12	26	9	4	13	5	4	9	0	2	2	50 32%	9	11	20	2	4	6	8	6	14	4	8	12	3	7	10	62 33%	168 34%
5. Have owned rabbits.	6	7	13	6	8	14	11	14	25	12	8	20	1	2	3	75 49%	28	24	52	12	8	20	6	6	12	1	5	6	90 57%	28	14	42	5	4	9	4	5	9	7	6	13	9	6	15	88 46%	253 51%
6. Have owned guinea pigs.	2	0	2	1	4	5	1	4	5	7	1	8	0	2	2	22 14%	6	0	6	2	1	3	2	4	6	1	0	1	16 10%	1	2	3	2	1	3	0	3	3	1	2	3	7	0	7	19 10%	57 11%
7. Have raised pets.	4	6	10	9	7	16	13	13	26	13	9	22	7	2	9	103 67%	26	26	52	12	8	20	8	3	11	0	3	3	86 55%	21	11	32	7	4	11	14	9	23	7	6	13	9	7	16	95 50%	284 57%
8. Have sold pets.	3	1	4	4	0	4	5	7	12	5	2	7				27 18%	12	7	19	1	1	2	1	1	2	1	0	1	24 15%	17	3	20	2	2	4	3	3	6	3	2	5	6	2	8	43 23%	94 19%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. Duties of pupils in caring for dog	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Feeding	1	0	1	3	3	6	4	4	8	7	4	11	4	0	4	30	9	9	18	10	4	14	4	2	6	2	2	4	42	11	6	17	3	3	6	7	2	9	4	2	6	5	5	10	48	120
2. Watching it out of doors	0	1	1	1	0	1	1	0	1							3	3	0	3										3							1	0	1							1	7
3. Bathing				1	0	1	2	1	3				1	0	1	5	1	4	5	2	1	3	1	0	1	1	1	2	11	4	1	5	0	2	2	5	0	5	1	1	2	0	3	3	17	33
4. Giving water				1	0	1	1	0	1	2	0	2				4				3	1	4	2	0	2				6				0	1	1	1	0	1							2	12
5. Exercising							1	0	1				1	0	1	2	2	1	3							0	1	1	4	2	2	4	0	1	1	2	2	4	1	0	1	1	0	1	11	17
6. Brushing							0	1	1							1	0	1	1										1	0	1	1										0	3	3	4	6
7. Taking in at night.																	0	1	1				1	0	1	1	0	1	3																	3
8. Buying a bone																				1	0	1							1																	1
9. Cleaning dog house																														1	0	1	1	0	1							1	0	1	3	3
10. Training																																				1	0	1							1	1
Total pupils having dogs	2	7	9	7	4	11	11	12	23	13	7	20	7	3	10	73 48%	20	20	40	11	6	17	7	5	12	3	4	7	76 48%	18	13	31	5	6	11	9	3	12	7	4	11	7	6	13	78 41%	227 45%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. Duties of pupils in caring for cat.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Feeding	4	3	7	7	7	14	4	8	12	1	7	8	4	4	8	49	14	14	28	9	4	13	3	4	7	0	2	2	50	8	11	19	2	4	6	7	5	12	4	8	12	2	8	10	59	158
2. Exercising				1	0	1	1	0	1							2																														2
3. Bathing							0	1	1				0	1	1	2																							0	1	1	1	1	2	3	5
4. Taking in at night.							0	1	1				0	1	1	2							2	1	3				3																	5
5. Put out at night.																	1	0	1										1																	1
6. Watching it out of doors.																	2	0	2										2							1	1	2							2	4
7. Training																	0	1	1										1																	1
8. Giving water																				1	1	2							2							1	0	1							1	3
9. Clean its box																														0	1	1				0	1	1							2	2
10. Combing																																	0	1	1										1	1
11. Washing its dishes.																																				0	1	1							1	1
Total pupils having cats.	7	10	17	10	7	17	12	14	26	12	9	21	7	5	12	93 61%	21	23	44	13	6	19	8	10	18	2	3	5	86 55%	22	20	42	7	6	13	12	8	20	7	9	16	7	11	18	109 57%	288 58%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

D. Other pets pupils have owned.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Dog	3	4	7	1	6	7	2	5	7	3	2	5	1	5	6	32	13	8	21	5	2	7	3	6	9	0	2	2	39	14	4	18	3	3	6	6	6	12	1	1	2	3	2	5	43	114
2. Goat	1	1	2							4	0	4				6	0	1	1				1	3	4	0	2	2	7	3	1	4							1	1	2	1	1	2	8	21
3. Pig	2	0	2	0	1	1				2	0	2	0	1	1	6	2	1	3	1	0	1	1	1	2				6																	12
4. Pigeon	2	0	2	0	1	1	2	0	2							5	6	2	8	2	1	3	2	0	2				13	2	0	2				1	1	2	1	1	2	1	0	1	7	25
5. Squirrel	1	0	1				1	1	2	1	0	1				4	2	0	2	1	0	1							3				1	1	2				1	0	1	0	1	1	4	11
6. Chicken	2	1	3	1	3	4	0	3	3	0	1	1	1	0	1	12	5	2	7	2	1	3	2	1	3	0	1	1	14	4	0	4				1	2	3	3	2	5	4	2	6	18	44
7. Rooster	1	0	1													1	1	0	1				1	0	1				2													0	1	1	1	4
8. Duck	1	1	2							1	0	1	1	1	2	5	2	1	3	1	0	1				0	1	1	5	3	1	4				1	1	2	1	2	3				9	19
9. Cow	1	0	1	1	1	2	0	1	1	2	0	2				6	1	0	1	0	2	2	3	2	5	0	1	1	9	1	0	1							2	1	3	2	1	3	7	22
10. Horse	1	1	2							2	0	2				4				1	2	3	1	0	1	0	1	1	5	2	0	2							0	1	1				3	12
11. Gander	1	0	1													1																														1
12. Bird	2	0	2	0	1	1	0	3	3	3	2	5				11	4	7	11	1	1	2	0	1	1				14	5	1	6	3	1	4	2	5	7	2	1	3	0	3	3	23	48
13. Cat	0	1	1	3	5	8	3	6	9	1	0	1	1	4	5	24	8	10	18	4	2	6	2	1	3	0	1	1	28	7	6	13	1	4	5	2	3	5	2	1	3	1	3	4	30	82
14. Fish	0	1	1				0	3	3							4	1	2	3	1	0	1				0	1	1	5	2	0	2	2	0	2	1	1	2				0	1	1	7	16
15. Crow				1	0	1										1																	0	1	1										1	2
16. Mice				1	1	2	1	2	3	5	0	5	0	1	1	11	3	1	4				0	2	2				6				2	1	3	1	0	1	1	1	2	1	1	2	8	25
17. Woodchuck				2	0	2										2	1	0	1										1	1	0	1													1	4
18. Turtle				1	1	2	0	2	2	0	2	2	1	0	1	7	4	1	5	3	0	3				1	0	1	9	3	0	3	3	0	3	4	1	5				0	1	1	12	28
19. Turkey				1	0	1				1	0	1				2							1	2	3				3							0	1	1	1	1	2	0	1	1	4	9
20. Snake				1	0	1										1																														1
21. Pony										1	0	1				1	0	1	1							0	1	1	2	1	0	1													1	4
22. Frog													1	0	1	1																														1
23. Chipmunk																	2	0	2	1	0	1							3																	3
24. Rabbit																	2	1	3										3	0	4	4							0	1	1	0	1	1	6	9
25. Geese																	1	0	1										1				1	0	1				0	2	2				3	4
26. Alligator																	1	0	1										1													1	0	1	1	2
27. Raccoon																	1	1	2										2																	2
28. Fox																	1	0	1										1																	1
29. Parrot																	1	0	1										1							0	2	2							2	3
30. Skunk																	1	0	1										1																	1
31. Sheep																							1	0	1				1																	1
32. Donkey																																										1	0	1	1	1
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

E. Pets raised.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Rabbits	2	0	2	1	1	2	5	0	5	0	2	2				11	8	8	16	6	0	6	3	0	3	1	1	2	27	11	4	15	4	0	4	2	2	4	2	2	4	2	4	6	33	71
2. Dogs	1	1	2	3	5	8	7	5	12	8	7	15	4	2	6	43	5	7	12	6	2	8	1	6	7				27	10	4	14	2	3	5	9	4	13	3	2	5	2	4	6	43	113
3. Cats	1	2	3	3	6	9	3	6	9	3	6	9	1	1	2	32	3	13	16	7	6	13	3	1	4				33	9	6	15	2	2	4	11	3	14	1	4	5	2	1	3	41	106
4. Chickens	1	1	2	2	1	3	0	3	3							8	1	2	3	1	0	1	2	1	3				7	1	0	1	0	1	1	1	0	1	1	1	2	1	1	2	7	22
5. Ducks	0	1	1													1	1	0	1	1	0	1				0	1	1	3	1	1	2				1	0	1	1	2	3	1	0	1	7	11
6. Birds	0	1	1				0	3	3	1	0	1				5							0	1	1				1	0	1	1				0	1	1							2	8
7. Goats	0	1	1										0	1	1	2	0	1	1				0	3	3				4	1	1	2							0	1	1	1	0	1	4	10
8. Woodchuck				1	0	1										1																														1
9. Pigs				1	0	1	1	0	1	2	0	2	1	0	1	5	1	0	1	1	0	1	0	1	1				3							1	0	1				1	0	1	2	10
10. Turkeys				1	0	1										1							1	2	3				3													0	1	1	1	5
11. Turtle				0	1	1	0	2	2							3																				1	0	1							1	4
12. Squirrels							1	1	2	1	0	1				3				1	0	1	1	0	1				2																	5
13. Cows							0	1	1							1	1	0	1				0	2	2				3	1	0	1							1	0	1	2	0	2	4	8
14. Mice							0	2	2	1	0	1	1	0	1	4	1	0	1				0	2	2				3				1	0	1	1	0	1				0	1	1	3	10
15. Fish							0	3	3							3																				1	0	1							1	4
16. Pony										1	0	1				1																														1
17. Guinea Pigs										1	0	1				1	2	0	2										2				1	0	1							4	0	4	5	8
18. Pigeons																	4	0	4										4	1	0	1							2	1	3				4	8
19. Geese																																							0	1	1				1	1
Total pupils raising pets.	4	6	10	9	7	16	13	13	26	13	9	22	7	2	9	103 67%	26	26	52	12	8	20	8	3	11	0	3	3	86 55%	21	11	32	7	4	11	14	9	23	7	6	13	9	7	16	95 50%	284 57%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	11	19	28	17	45	14	10	24	13	15	28	190	500

TABLE 28 SHOWING THE INTEREST AND EXPERIENCE OF PUPILS

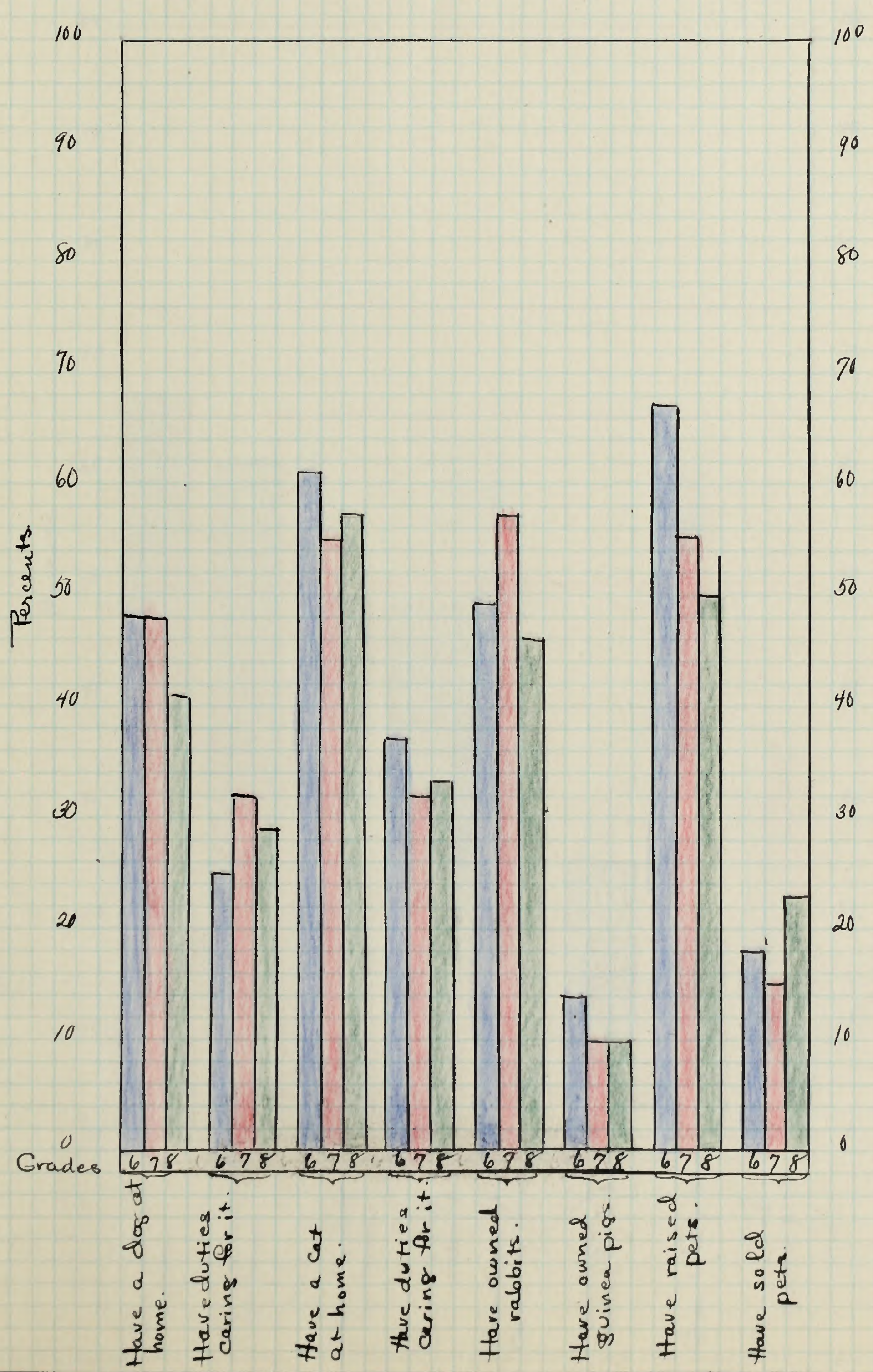
TABLE 28 - SHOWING THE INTEREST AND EXPERIENCE OF PUPILS WITH PETS

F. Pets sold.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town E			Town F				Town A			Town B			Town E			Town F				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Rabbits	2	1	3	2	0	2	3	2	5							10	6	5	11	1	1	2				1	0	1	14	12	2	14	1	1	2	1	2	3	1	1	2	4	2	6	27	51
2. Chickens	1	0	1	1	0	1				1	0	1				3	1	0	1										1	1	0	1	0	1	1	0	1	1	2	1	3	0	1	1	7	11
3. Pigeons				1	0	1										1	3	0	3										3	1	0	1							0	1	1				2	6
4. Dogs							1	2	3	1	2	3				6	2	1	3	1	0	1	0	2	2				6	2	1	3				2	0	2	1	1	2				7	19
5. Pigs							1	1	2	1	0	1				3														1	0	1													1	4
6. Ducks							0	1	1							1																														1
7. Cats																	0	1	1				0	1	1				2										0	1	1	1	0	1	2	4
8. Squirrel																				1	0	1							1																	1
9. Cow																							1	0	1				1										0	1	1	1	0	1	2	3
10. Horse																														1	0	1													1	1
11. Goat																														1	0	1										1	0	1	2	2
12. Guinea Pigs																																	1	0	1							3	0	3	4	4
13. Mice																																	1	0	1										1	1
14. Parrot																																				0	1	1							1	1
Total pupils selling pets	3	1	4	4	0	4	5	7	12	5	2	7				27 18%	12	7	19	1	1	2	1	1	2	1	0	1	24 15%	17	3	20	2	2	4	3	3	6	3	2	5	6	2	8	43 23%	94 19%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

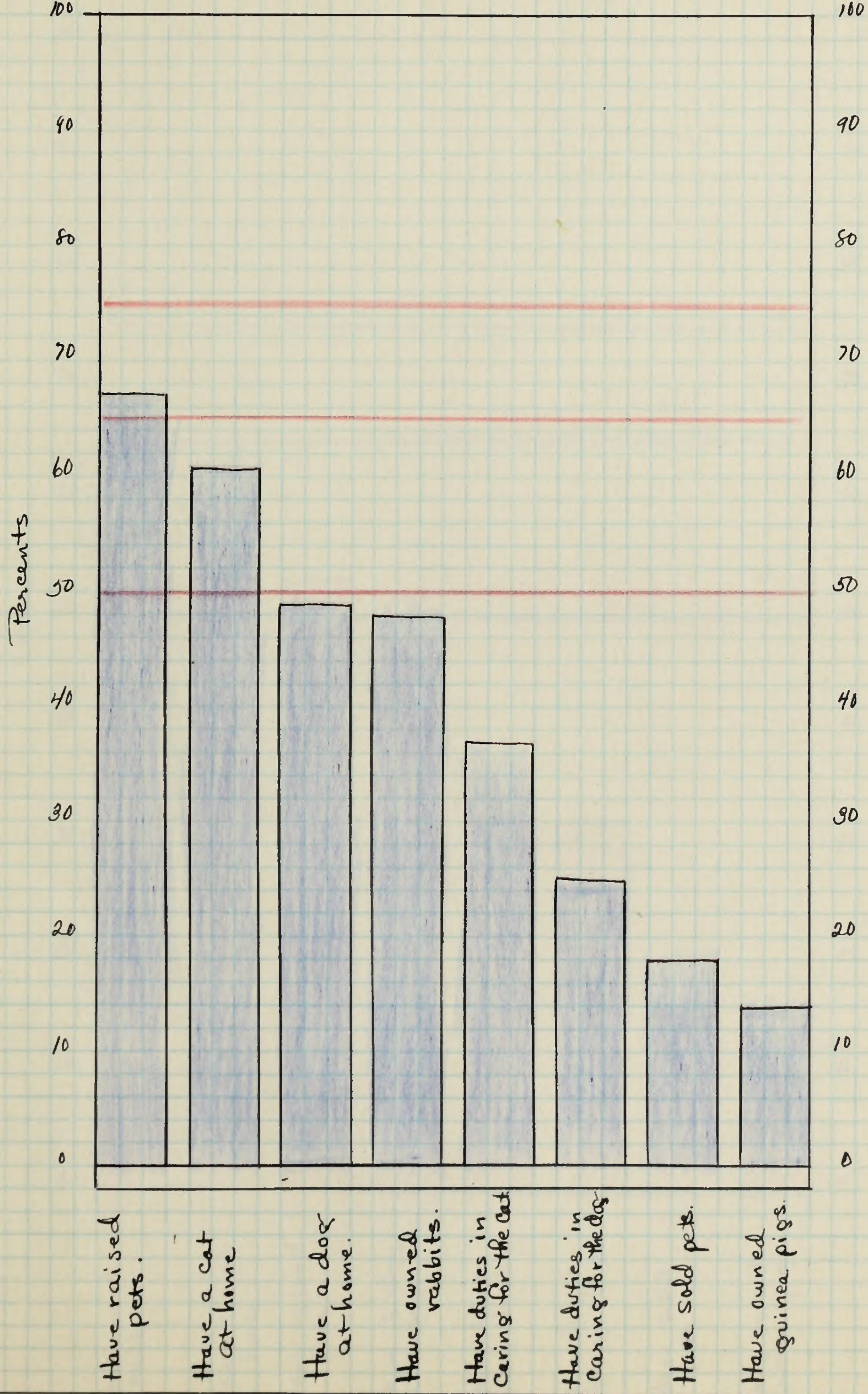
G. Facts about selling pets.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Knew the selling price	3	1	4	4	0	4	3	0	3	2	2	4				15	11	4	15	1	0	1	1	1	2	1	0	1	19	13	0	13	2	0	2	3	2	5	2	2	4	3	1	4	28	62
2. Made money	3	1	4	1	0	1	4	1	5	1	2	3				13	8	2	10	1	0	1							11	9	0	9	2	1	3	1	1	2	1	1	2	4	1	5	21	45
3. Lost money				1	0	1	1	0	1							2	3	2	5				1	0	1				6	1	0	1				2	1	3	1	0	1				5	13
4. Didn't know				2	0	2	0	6	6	4	0	4				12	1	3	4	0	1	1	0	1	1	1	0	1	7	7	3	10	0	1	1	0	1	1	1	1	2	2	1	3	17	36
Total pupils selling pets	3	1	4	4	0	4	5	7	12	5	2	7				27 18%	12	7	19	1	1	2	1	1	2	1	0	1	24 15%	17	3	20	2	2	4	3	3	6	3	2	5	6	2	8	43 23%	94 19%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

H. Favorite pet.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Dog	5	7	12	11	10	21	12	17	29	9	3	12	5	6	11	85	25	25	50	14	7	21	4	21	25	2	3	5	101	27	19	46	6	8	14	18	11	29	9	8	17	8	10	18	124	310
2. Horse	1	0	1	1	0	1	1	0	1	1	1	2	3	2	5	10	5	0	5	1	0	1	1	1	2	0	4	4	12	3	3	6				1	0	1	0	1	1				8	30
3. Cow	1	0	1													1	1	0	1										1	1	0	1										1	0	1	2	4
4. Pony	0	1	1				1	3	4	1	0	1				6	0	2	2	0	1	1							3	1	1	2													2	11
5. Cat	0	2	2	3	3	6	4	4	8	1	1	2	0	3	3	21	9	10	19	0	2	2	1	3	4	1	0	1	26	3	6	9	1	2	3	1	3	4	2	4	6	0	2	2	24	71
6. Goat	0	1	1							1	0	1				2							1	1	2				2							1	0	1							1	3
7. Rabbit	0	1	1				3	1	4	1	3	4	0	1	1	10	1	6	7	1	0	1	1	0	1				9	1	0	1	1	0	1							1	0	1	3	22
8. Monkey				0	1	1				0	1	1				2	0	1	1										1													0	1	1	1	4
9. Pig							0	1	1							1	1	0	1										1																	2
10. Parrot							0	1	1							1																				1	0	1							1	2
11. Chicken													0	1	1	1				1	0	1							1							0	1	1							1	3
12. Sheep													0	1	1	1										0	1	1	1																	2
13. Pigeon																	4	0	4										4										1	0	1	0	1	1	2	6
14. Squirrel																	2	0	2										2	1	0	1													1	3
15. Bird																	0	1	1	0	1	1							2	0	1	1	0	1	1										2	4
16. Donkey																																										1	0	1	1	1
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

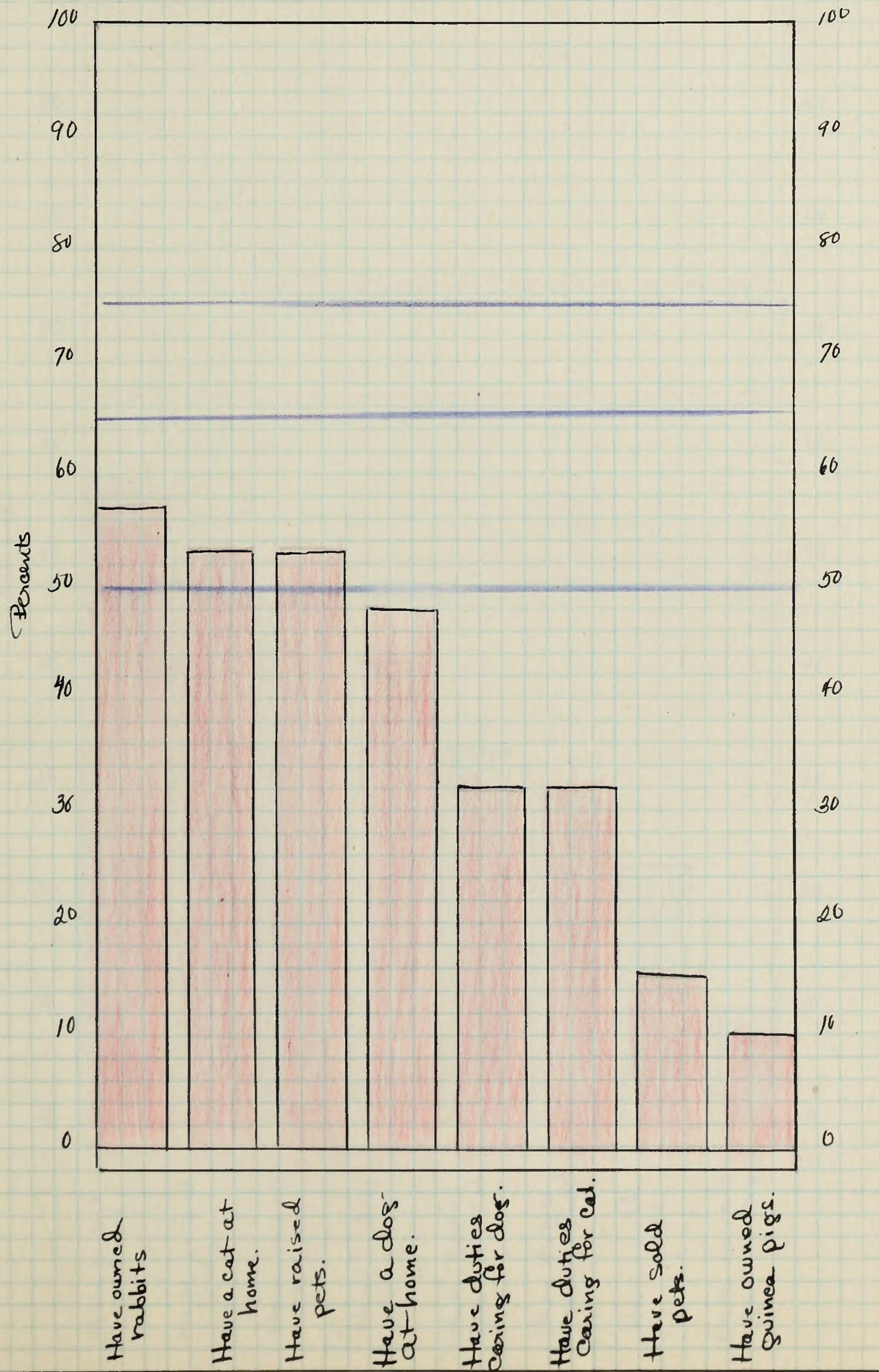
GRAPH 21 - SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING AN INTEREST IN OR EXPERIENCE WITH PETS.



GRAPH 22- SHOWING THE EXPERIENCES WITH PETS OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 23- SHOWING THE EXPERIENCES WITH PETS OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 24- SHOWING THE EXPERIENCES WITH PETS OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

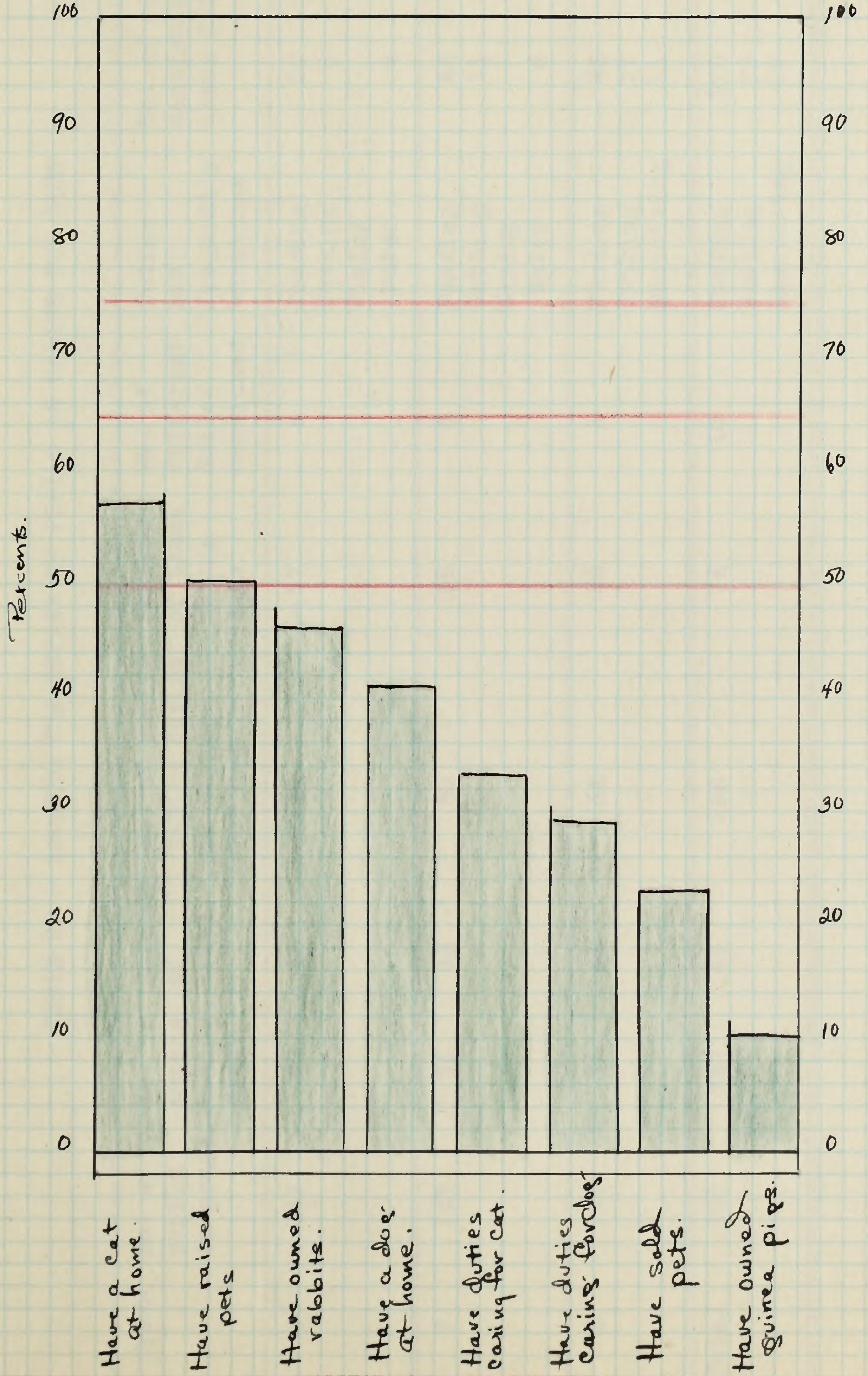


TABLE 29 - SHOWING THE DUTIES OF PUPILS IN CARING FOR DOGS

Grade	No. of pupils in grade	No. of pupils having dogs	Percent of total	No. of pupils having duties in caring for dog	Percent of those having dogs	No. of different duties mentioned	Duties most frequently mentioned	No. of pupils mentioning these duties	Percent of those having dogs
6	153	73	48	56	77	6	Feeding	30	41
							Bathing	5	7
							Giving water	4	5
7	157	76	48	50	65	8	Feeding	42	57
							Bathing	11	14
							Giving water	6	8
8	190	78	41	62	80	8	Feeding	48	62
							Bathing	17	22
							Exercising	11	14
Total	500	227	45	168	74	10	Feeding	120	52
							Bathing	33	10
							Exercising	17	7

TABLE 30 - SHOWING THE DUTIES OF PUPILS IN CARING FOR CATS

Grade	No. of pupils in grade	No. of pupils having cats	Percent of total	No. of pupils having duties in caring for cat	Percent of those having cats	No. of different duties mentioned	Duties most frequently mentioned	No. of pupils mentioning these duties	Percent of those having cats
6	153	93	61	56	60	4	Feeding	49	53
							Exercising	2	2
							Bathing	2	2
							Taking in at night	2	2
7	157	86	55	50	59	6	Feeding	50	58
							Taking in at night	3	3
							Watching it out-of-doors	2	2
							Giving water	2	2
8	190	109	57	62	57	7	Feeding	59	54
							Bathing	3	3
							Watching it out-of-doors	2	2
							Cleaning its box	2	2
Total	500	288	58	168	58	11	Feeding	158	55
							Bathing	5	2
							Taking in at night	5	2

TABLE 31 - SHOWING OTHER PETS WHICH PUPILS HAVE OWNED

Grade	No. of pupils in grade	No. of different pets mentioned	Pets most frequently mentioned	No. of pupils mentioning these pets	Percent of total pupils in grade
6	153	22	Dog	32	21
			Cat	24	16
			Chicken	12	8
7	157	27	Dog	39	25
			Cat	28	18
			Chicken	14	9
			Bird	14	9
8	190	23	Dog	43	23
			Cat	30	16
			Bird	23	12
Total	500	32	Dog	114	23
			Cat	82	16
			Bird	48	10

TABLE 32 - SHOWING THE PETS WHICH PUPILS HAVE RAISED

Grade	No. of pupils in grade	No. of pupils raising pets	Percent of total	No. of different pets raised	Pets most frequently raised	No. of pupils raising these pets	Percent of those raising pets
6	153	103	67	17	Dogs	43	42
					Cats	32	31
					Rabbits	11	11
7	157	86	55	14	Cats	33	38
					Dogs	27	31
					Rabbits	27	31
8	190	95	50	16	Dogs	43	45
					Cats	41	43
					Rabbits	33	34
Total	500	284	57	19	Dogs	113	40
					Cats	106	37
					Rabbits	71	25

TABLE 33 - SHOWING THE PETS SOLD BY PUPILS

Grade	No. of pupils in grade	No. of pupils selling pets	Percent of total	No. of different pets sold	Pets most frequently sold	No. of pupils selling these pets	Percent of those selling pets
6	153	27	18	6	Rabbits	10	37
					Dogs	6	22
					Chickens	3	11
					Pigs	3	11
7	157	24	15	7	Rabbits	14	58
					Dogs	6	25
					Pigeons	3	13
8	190	43	23	12	Rabbits	27	63
					Chickens	7	16
					Dogs	7	16
Total	500	94	19	14	Rabbits	51	54
					Dogs	19	20
					Chickens	11	12

TABLE 34 - SHOWING THE KNOWLEDGE OF PUPILS CONCERNING THE SELLING OF PETS

Grade	No. of pupils in grade	No. of pupils selling pets	Percent of total	No. who knew selling price	Percent of pupils selling pets	No. who made money	Percent of pupils selling pets	No. who lost money	Percent of pupils selling pets	No. who didn't know	Percent of pupils selling pets
6	153	27	18	15	56	13	48	2	7	12	44
7	157	24	15	19	80	11	46	6	25	7	29
8	190	43	23	28	65	21	49	5	12	17	40
Total	500	94	19	62	66	45	48	13	14	36	38

TABLE 35 - SHOWING PUPILS' CHOICE OF A FAVORITE PET

Grade	No. of pupils in grade	No. of different pets mentioned as favorites	Pets most frequently mentioned	No. of pupils mentioning these pets	Percent of total pupils in grade
6	153	11	Dog	85	56
			Cat	21	14
			Horse	10	7
			Rabbit	10	7
7	157	14	Dog	101	64
			Cat	26	16
			Horse	12	8
8	190	14	Dog	124	65
			Cat	24	13
			Horse	8	4
Total	500	16	Dog	310	62
			Cat	71	14
			Horse	30	6

H. Data on Travel.-- Table 36 is a summary table of all the data on travel secured through the questionnaire. The graphs and tables which follow put the data in more usable form.

In graph 25 is shown the farthest places pupils in the three grades have ever been from where they now live. The percent of no response answers, 35% in grade 6, 18% in grade 7, and 19% in grade 8, shows how meager has been the experience in travel, as does the percent who say the farthest they have been is to another town or city in Massachusetts. It seems unnecessary to comment on each item in the graph. Obviously, the children used in this study have had practically no experience in traveling.

Graphs 26, 27 and 28 show in even greater detail how little these children have traveled. None of the items listed reach any standard.

Graph 29 gives evidence of the same lack of experience in travel. The fact that 58% of the sixth grade, 51% of the seventh and 42% of the eighth grade gave no response to the question of the greatest number of miles they have ever been from where they now live probably indicates that they have not traveled far, and perhaps that they have little idea of distance. From those who did respond to the question, the data collected gives further evidence that the pupils in the study have had very little traveling experience.

Graphs 30, 31 and 32, with the three standards indicated, show that the only response reaching a standard is, is the sixth and seventh grades, a "no response" answer. Graphs 25 through 32, taken as a whole, would indicate that the topic of travel is not one to be used as a basis for a problem unit if any one of the three standards is used.

Tables 37 through 41 give in detail additional information secured on this topic by means of the questionnaire.

Although the preceding data shows little experience in travel, and interpreted statistically would lead to the conclusion that a problem-solving unit in arithmetic should not be based on this topic, this conclusion might well be questionned on the basis of social-utility. People must travel, and to do so intelligently need to have a knowledge of the various methods of transportation and their relative costs. Even experience seems not to have taught some of the high cost of automobile travel, for instance, when it is used by only one person.

This point of view as well as others connected with various forms of travel can be brought to the child through problem-units. Probably in this case, the viewpoint of travel as a common adult activity rather than as an experience had by not many children should be the correct one for the teacher to take, and so result in the decision that an informational problem-solving unit based on this topic will prove both interesting and valuable to the pupils.

TABLE 36 - SHOWING THE EXTENT TO WHICH PUPILS HAVE TRAVELED.

A. The farthest place the pupil has ever been from where he now lives.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town C				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Another town or city in Mass.	1	2	3	6	0	6	4	5	9	5	0	5	1	1	2	25 16%	5	11	16	2	1	3	5	4	9	0	1	1	29 18%	6	3	9	3	4	7	2	1	3	2	3	5	1	1	2	26 14%	80 16%
2. N.H.	2	2	4	1	1	2	0	3	3	0	2	2	1	0	1	12 8%	3	7	10	0	2	2	1	1	2	0	2	2	16 10%	2	2	4	2	2	4	5	1	6	2	0	2	0	1	1	17 9%	45 9%
3. Canada	2	1	3	1	2	3	2	2	4				0	1	1	11 7%	6	4	10	0	1	1	0	1	1	1	1	2	14 9%	8	4	12	1	2	3	1	2	3	1	0	1	1	1	2	21 11%	46 9%
4. Pa.	1	0	1	0	1	1				1	0	1				3 2%	1	0	1	0	1	1	1	0	1				3 2%							1	0	1	1	1	2	1	0	1	4 2%	10 2%
5. Conn.	0	1	1	1	0	1	1	1	2				1	0	1	5 3%	3	1	4	1	1	2							6 4%	2	1	3							1	0	1	1	0	1	5 3%	16 3%
6. Me.	0	1	1	1	3	4	2	1	3	1	0	1	1	1	2	11 7%	7	2	9	2	1	3				0	1	1	13 8%	7	6	13	0	1	1	5	0	5	1	1	2	2	5	7	28 15%	52 10%
7. R.I.	0	2	2				2	1	3	0	2	2	0	1	1	8 5%	3	5	8	1	0	1	1	0	1				10 6%	1	1	2				1	2	3				0	2	2	7 4%	25 5%
8. Washington D.C.				1	0	1	1	0	1							2 1%				1	0	1							1 .61%	1	0	1				1	0	1							2 1%	5 1%
9. Vt.				1	0	1							1	0	1	2 1%	3	1	4	1	0	1							5 3%	1	0	1										1	1	2	3 2%	10 2%
10. N.Y.				1	1	2	3	3	6	0	2	2	0	2	2	12 8%	4	1	5	3	2	5	2	3	5				15 11%	2	4	6	1	1	2	5	3	8	2	2	4	1	0	1	21 11%	48 10%
11. England				0	1	1										1 .65%																															1 .2%
12. N.J.				0	1	1	1	0	1							2 1%	2	0	2										2 1%	0	1	1													1 .53%	5 1%
13. Md.							1	0	1							1 .65%																															1 .2%
14. Sweden							0	1	1							1 .65%																															1 .2%
15. Va.							0	1	1							1 .65%				0	1	1							1 .61%	1	0	1										0	1	1	2 1%	4 .8%
16. Ky.							0	1	1							1 .65%																															1 .2%
17. Fla.										1	0	1				1 .65%	0	1	1										1 .61%							2	0	2	1	3	4				6 3%	8 2%
18. Ill.													1	0	1	1 .65%																															1 .2%
19. Iowa																	1	0	1										1 .61%																	1 .2%
20. Italy																	1	0	1										1 .61%	0	1	1				0	1	1							2 1%	3 .6%
21. Minn.																	0	1	1										1 .61%																	1 .2%
22. Bermuda																	0	1	1							1	0	1	2 1%																	2 .4%
23. W. Va.																				1	0	1							1 .61%																	1 .2%
24. Ohio																				1	0	1				0	1	1	2 1%	1	0	1	1	0	1	1	0	1							3 2%	5 1%
25. Cal.																				1	0	1				1	0	1	2 1%							1	0	1							1 .53%	3 .6%
26. Wis.																							1	0	1				1 .61%																	1 .2%
27. N.C.																							0	1	1				1 .61%																	1 .2%
28. Del.																														1	0	1													1 .53%	1 .2%
29. Mich.																														0	1	1				1	0	1							2 1%	2 .4%
30. Ind.																																										1	0	1	1 .53%	1 .2%
31. Neb.																																										1	0	1	1 .53%	1 .2%
No response	2	4	6	2	3	5	6	11	17	12	5	17	4	4	8	53 35%	11	9	20	4	1	5	0	4	4				29 18%	9	8	17	1	0	1	2	7	9	3	0	3	3	3	6	36 19%	118 24%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. The greatest number of miles the pupil has ever been from where he now lives.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1) 1,000 – 3000				0	2	2	1	1	2							4 3%	2	1	3	1	0	1				1	0	1	5 3%	2	1	3				1	1	2							5 3%	14 3%
2) 750 – 999																	3	0	3	1	0	1							4 3%	1	0	1				2	0	2				1	0	1	4 2%	8 2%
3) 500 – 749	1	0	1	1	2	3	2	0	2				1	0	1	7 5%	2	1	3	0	2	2				0	2	2	7 4%	6	3	9	1	0	1	4	1	5							15 8%	29 6%
4) 250 – 499				1	2	3	1	0	1	2	2	4				8 5%	6	0	6	1	0	1	1	2	3				10 6%	4	10	14	0	3	3	5	1	6	1	3	4	2	2	4	31 16%	49 10%
5) 100 – 249	1	0	1	4	4	8	8	4	12	3	1	4	2	0	2	27 18%	9	10	19	4	0	4	3	2	5	0	2	2	30 19%	7	4	11	2	1	3	6	0	6	6	1	7	1	2	3	30 16%	87 17%
6) 50 – 99	1	0	1	2	0	2	1	3	4	2	0	2	2	1	3	12 8%	2	3	5	1	0	1	2	2	4				10 6%	6	3	9	1	3	4	4	0	4				0	1	1	18 9%	40 8%
7) 0 – 49	1	0	1	1	0	1	2	1	3	1	0	1				6 4%	2	5	7	1	0	1	1	1	2				10 6%	2	0	2	2	0	2	2	0	2	1	1	2				8 4%	24 5%
No response	4	13	17	6	3	9	8	21	29	12	8	20	5	9	14	89 58%	24	24	48	9	9	18	4	7	11	2	2	4	81 51%	14	11	25	3	3	6	4	14	18	6	5	11	9	10	19	79 42%	249 50%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. The farthest automobile trip ever taken.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Within Mass.	3	4	7	8	0	8	4	6	10	6	2	8	3	1	4	37	7	11	18	4	3	7	6	5	11	0	1	1	37	7	4	11	3	3	6	3	1	4	5	3	8	1	2	3	32	106
2. Mass. to N.H.	3	2	5	1	0	1							0	1	1	7	6	10	16	1	2	3	1	1	2	0	1	1	22				2	2	4	9	3	12	2	2	4	2	2	4	24	53
3. Mass. to Canada	2	0	2	0	3	3	2	2	4				0	2	2	11	6	5	11	0	1	1				1	1	2	14	7	4	11	1	2	3	0	1	1	1	0	1	1	2	3	19	44
4. Mass. to Conn.	0	1	1	2	1	3	2	2	4				1	0	1	9	5	1	6	3	1	4	0	1	1				11	2	0	2	2	0	2				1	0	1	1	0	1	6	26
5. Mass. to Me.	0	1	1	1	2	3	2	2	4	3	0	3	2	4	6	17	9	7	16	2	0	2				1	1	2	20	9	7	16	0	1	1	2	0	2	1	1	2	0	3	3	24	61
6. R.I. to N.H.	0	1	1				0	3	3	0	2	2				6																														6
7. Mass. to Washington D.C.				1	0	1	1	0	1	1	0	1				3				1	0	1							1							1	0	1							1	5
8. Mass. to Vt.				1	1	2							1	0	1	3	2	0	2	1	0	1							3	1	0	1										3	1	4	5	11
9. Mass. to N.J.				0	1	1										1	2	1	3				0	1	1				4	1	1	2				0	1	1	0	1	1				4	9
10. Mass. to N.Y.				0	3	3	4	4	8	1	4	5	0	1	1	17	3	1	4	4	2	6	2	2	4	1	0	1	15	3	8	11	0	2	2	4	3	7	1	1	2	1	0	1	23	55
11. Mass. to Pa.				0	1	1										1	1	0	1	0	1	1	1	0	1				3	1	0	1				2	1	3	0	1	1	1	0	1	6	10
12. Mass. to R.I.							3	0	3	0	2	2	0	1	1	6	2	4	6	1	0	1	0	3	3				10	1	2	3				1	0	1	1	0	1				5	21
13. Mass. to Md.							1	0	1							1																														1
14. Conn. to N.Y.							0	1	1							1																														1
15. Mass. to Ohio							0	1	1							1				1	0	1				0	1	1	2	1	0	1				1	0	1				0	1	1	3	6
16. Mass. to Va.							0	1	1							1				0	1	1							1													0	1	1	1	3
17. Mass. to Ky.							0	1	1	1	0	1	1	0	1	3																														3
18. Mass. to Fla.										1	0	1				1																				1	1	2	1	0	1	1	0	1	4	5
19. Mass. to Ill.													1	0	1	1																							1	0	1				1	2
20. Mass. to Iowa																	1	0	1										1																	1
21. Mass. to Wis.																							1	0	1				1																	1
22. Mass. to Cal.																														1	0	1													1	1
23. Mass. to Ala.																														1	0	1													1	1
24. N.H. to N.Y.																														0	1	1													1	1
25. Mass. to Del.																														1	0	1													1	1
26. Mass. to Mich.																																				1	0	1							1	1
27. Mass. to Ind.																																										1	0	1	1	1
No response.	0	4	4	1	1	2	4	7	11	7	1	8	1	0	1	26	6	4	10				0	1	1	0	1	1	12	6	5	11	1	0	1	3	6	9	0	1	1	1	3	4	26	64
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

TABLE 36 - SHOWING THE EXTENT TO WHICH PUPILS HAVE TRAVELED.

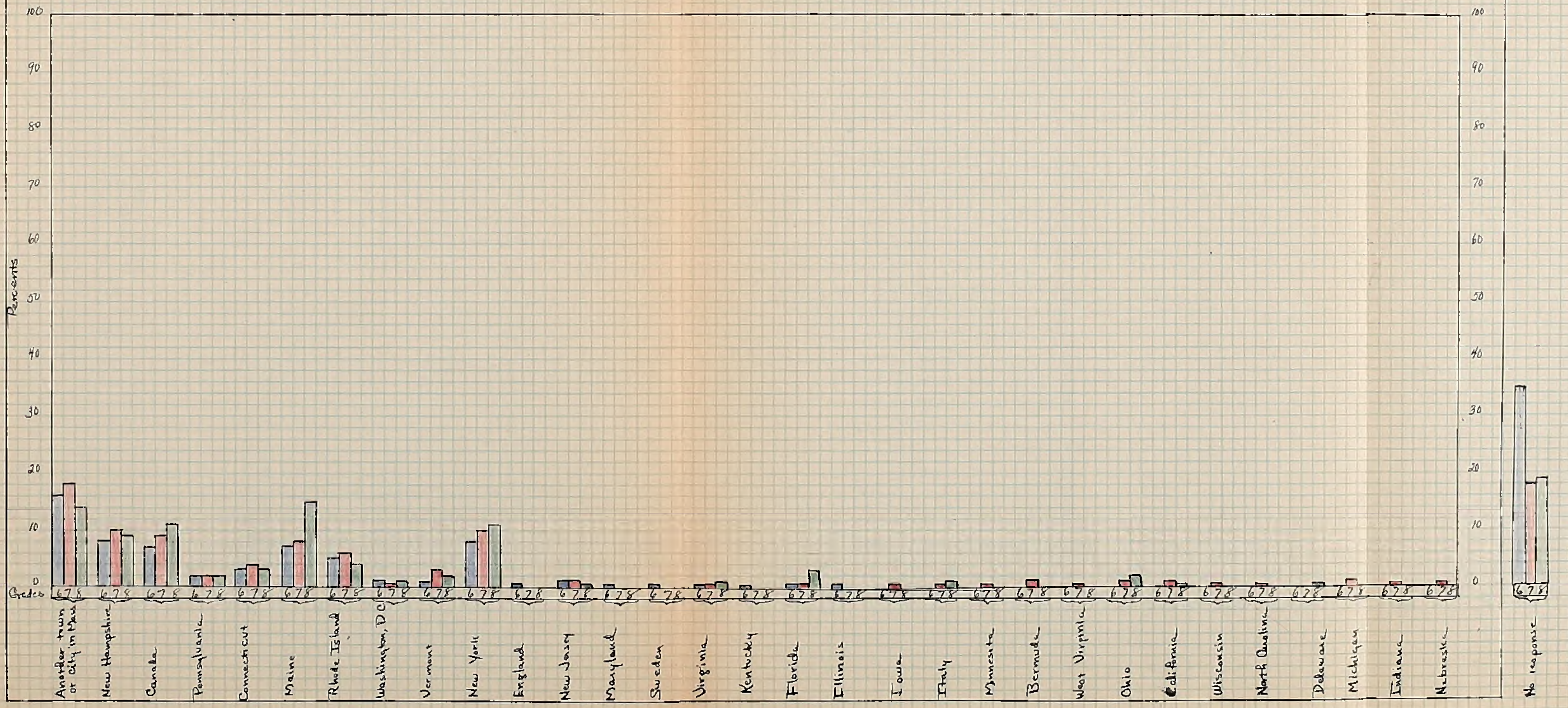
D. The farthest train trip ever taken.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Within Mass.	4	5	9	9	5	14	9	10	19	1	1	2	3	4	7	51	24	24	48	3	3	6	1	3	4	0	3	3	61	20	16	36	3	6	9	7	2	9	1	1	2	3	6	9	65	177
2. Mass. to Pa.	1	0	1				0	1	1	1	0	1				3																				0	2	2	1	0	1	0	1	1	4	7
3. Mass. to N.H.	0	1	1				0	1	1				0	1	1	3	1	1	2										2	1	3	4				1	1	2				2	0	2	8	13
4. Mass. to Canada				2	0	2										2	1	0	1							1	1	2	3	1	0	1	0	1	1	1	0	1							3	8
5. Mass. to Me.				1	1	2	1	2	3							5	1	3	4	0	1	1							5	1	0	1				1	1	2	1	0	1	1	1	2	6	16
6. Liverpool to London, Eng.				0	1	1										1																														1
7. Mass. to N.J.				0	1	1	0	1	1	0	1	1				3														0	1	1													1	4
8. Mass. to N.Y.				0	1	1				0	1	1	1	0	1	3	1	1	2	3	0	3	1	1	2	1	0	1	8	2	1	3				2	3	5				1	1	2	10	21
9. Mass. to R.I.							1	0	1				1	0	1	2	1	1	2	0	1	1	0	1	1				4	1	1	2	1	0	1	1	0	1				0	1	1	5	11
10. Yarmouth to Kenville, N.S.							1	0	1							1																														1
11. Mass. to Conn.							0	1	1							1	2	1	3	1	0	1							4	0	1	1							1	2	3				4	9
12. Mass. to Cal.										0	1	1				1				1	0	1				1	0	1	2																	3
13. N.Y. to Ky.													1	0	1	1																														1
14. Mass. to Vt.													0	1	1	1										0	1	1	1	0	1	1	1	0	1							0	1	1	3	5
15. N.Y. to Pa.													0	1	1	1														1	0	1													1	2
16. Mass. to Minn.																	0	1	1										1																	1
17. N.Y. to W. Va.																				1	0	1							1																	1
18. N.Y. to N.C.																							0	1	1				1																	1
19. Mass. to Ohio																										0	1	1	1													1	1	2	2	3
20. N.Y. to Washington, D.C.																														1	0	1													1	1
21. R.I. to N.Y.																														1	0	1													1	1
22. Within N.Y.																																				2	0	2							2	2
23. Mass. to Fla.																																				1	1	2							2	2
24. N.Y. to Mich.																																				1	0	1							1	1
25. Mass. to Ark.																																							1	0	1				1	1
26. Conn. to N.Y.																																							1	0	1				1	1
27. N.Y. to N.J.																																							0	1	1				1	1
28. Within Pa.																																							0	1	1				1	1
29. Mass. to Ga.																																							0	1	1				1	1
30. Conn. to Me.																																										1	0	1	1	1
31. Mass. to Neb.																																										1	0	1	1	1
No response	3	7	10	3	4	7	11	14	25	18	7	25	4	3	7	74	19	12	31	9	6	15	9	8	17				63	13	8	21	4	3	7	11	7	18	8	4	12	3	3	6	64	201
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

E. The farthest boat trip ever taken.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. New Bedford to Martha's Vineyard	1	0	1							1	1	2				3	0	2	2				1	2	3				5	0	1	1							1	0	1				2	10
2. Boston to Provincetown.	0	1	1	1	0	1	3	2	5							7	3	1	4	1	1	2							6	6	5	11				3	1	4				0	1	1	16	29
3. On a lake.	0	1	1				0	2	2							3	3	2	5	3	0	3							8	0	1	1	1	0	1										2	13
4. Boston to Nova Scotia	0	1	1				1	1	2				0	1	1	4	1	0	1				0	1	1				2	3	2	5													5	11
5. Boston to Nantasket				1	1	2	0	4	4				1	1	2	8	10	6	16	0	1	1				0	1	1	18	6	2	8				3	4	7				1	0	1	16	42
6. Boston to New York				2	1	3	0	2	2							5	5	1	6	1	0	1	1	0	1	0	2	2	10							3	1	4	0	1	1				5	20
7. Hyannis to Nantucket				1	0	1										1																														1
8. Out into the ocean and return				1	0	1	0	1	1	1	0	1				3	1	0	1	1	0	1	1	0	1				3	1	0	1							1	1	2				3	9
9. Fall River to New York				1	0	1										1							0	2	2				2										1	1	2				2	5
10. Boston to Liverpool, Eng.				0	1	1										1																														1
11. Woods Hole to Nantucket				0	1	1										1														0	2	2													2	3
12. Boston to Norfolk, Va.							0	1	1							1														1	0	1										0	1	1	2	3
13. New Bedford to Nantucket										1	0	1				1							1	0	1				1	1	0	1													1	3
14. Mattapoisett to Woods Hole										0	1	1				1																														1
15. Mattapoisett to Martha's Vineyard										0	1	1				1																														1
16. Mattapoisett to Cape Cod Canal										1	0	1				1																														1
17. Bridgeport, Conn. to N.Y.										1	0	1				1																														1
18. New Bedford to Woods Hole										1	0	1				1																							1	0	1				1	2
19. Gloucester to Chatham													1	0	1	1																														1
20. Onset to Newburyport																	1	0	1										1																	1
21. Onset to Mattapoisett																	1	0	1										1																	1
22. Italy to U.S.																	1	0	1										1	0	1	1				0	1	1							2	3
23. Boston to Jacksonville, Fla.																	0	1	1										1																	1
24. New York to Bermuda																	0	1	1							1	0	1	2																	2
25. Boston to Lynn.																	0	1	1	0	1	1							2																	2
26. Onset to Wareham																	0	1	1										1																	1
27. St. John to P.E.I.																	0	1	1										1																	1
28. Across a river																							1	0	1				1				1	1	2	0	1	1				0	1	1	4	5
29. Mattapoisett to New Bedford																							1	0	1				1										1	0	1				1	2
30. Mattapoisett to New York																							0	1	1				1																	1
31. Boston to Portland, Me.																										1	0	1	1													1	1	2	2	3
32. Boston to Providence, R.I.																										0	1	1	1							1	0	1							1	2
33. Boston to Revere																														1	0	1				0	1	1				0	1	1	3	3
34. Sandusky, Ohio to Buffalo, N.Y.																														1	0	1													1	1
35. Boston to Winthrop																														1	0	1													1	1
36. Five Islands, Me. to Boothbay Harbor																														0	1	1													1	1
37. New London, Conn. to Fishers Is.																														0	1	1													1	1
38. Rockland, Me. to Vinalhaven.																																	0	1	1										1	1
39. Providence to N.Y.																																				1	0	1	0	1	1				2	2
40. Boston to Nantucket																																				1	0	1							1	1
41. Detroit to Buffalo																																				1	0	1							1	1
42. Salem to Marblehead																																				0	1	1							1	1
43. Mattapoisett to Marion																																							0	1	1				1	1
44. Buzzards Bay to Bath, Me.																																										1	0	1	1	1
45. N.Y. to Liverpool, Eng.																																										0	1	1	1	1
No response	7	10	17	8	9	17	19	17	36	14	8	22	8	8	16	108	24	27	51	12	8	20	5	8	13	1	2	3	87	21	16	37	7	8	15	15	7	22	9	5	14	10	9	19	107	302
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

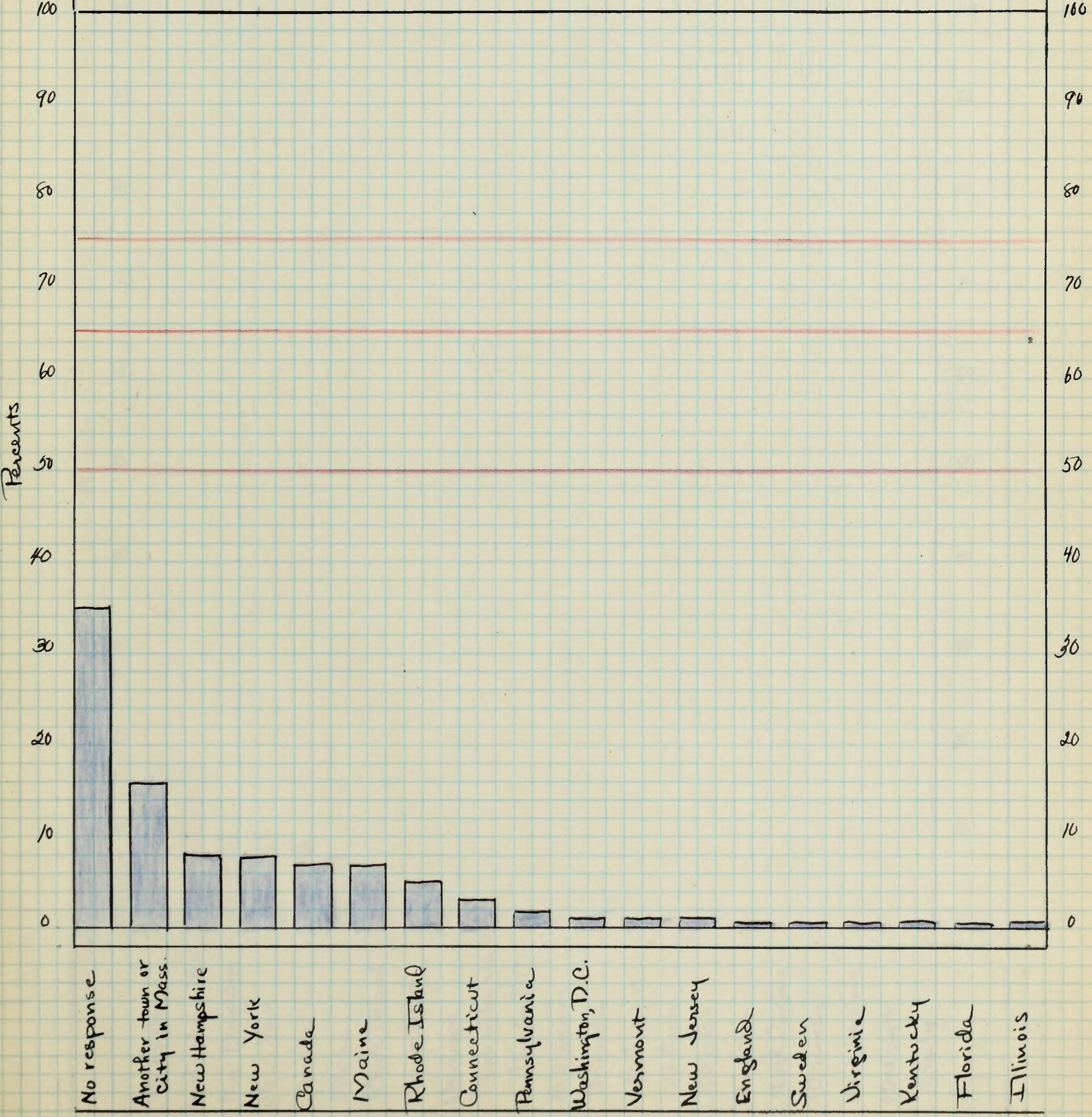
F. The farthest bus trip ever taken.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Local	0	4	4	4	4	8	4	6	10	7	3	10	4	2	6	38	16	10	26	0	3	3	8	10	18	0	1	1	48	12	6	18	2	5	7	2	0	2	7	5	12	4	6	10	49	135
2. Within Mass.	4	3	7	7	2	9	8	13	21	2	0	2	1	6	7	46	15	19	34	11	0	11	1	0	1	0	3	3	49	20	16	36	2	1	3	13	5	18				1	2	3	60	155
3. Mass. to R.I.	1	0	1				1	0	1	0	1	1				3	2	2	4	1	2	3	1	0	1				8	2	1	3	0	1	1	1	1	2							6	17
4. Mass. to N.H.	0	1	1													1	1	1	2	0	1	1							3	1	1	2													2	6
5. Mass. to Canada				1	0	1										1														1	0	1				0	1	1							2	3
6. Mass. to Conn.				1	0	1	0	1	1							2							0	1	1	0	1	1	2							1	0	1							1	5
7. Mass. to N.J.				0	1	1	0	0	1							2																				0	1	1							1	3
8. Mass. to Me.							1	1	2							2	1	1	2										2	0	1	1				0	1	1				3	0	3	5	9
9. Mass. to N.Y.							2	0	2							2	2	0	2	1	0	1							3	0	2	2	1	1	2	3	1	4	1	0	1	2	0	2	11	16
10. N.Y. to Me.													1	0	1	1																														1
11. Mass. to Pa.																														2	0	2													2	2
12. Mass. to Ohio																														1	0	1	1	0	1										2	2
13. Within Me.																																				1	0	1							1	1
14. Conn. to R.I.																																							1	0	1				1	1
No response	3	5	8	2	6	8	7	8	15	11	7	18	4	2	6	55	13	11	24	5	5	10	1	3	4	3	1	4	42	3	5	8	3	2	5	7	7	14	5	5	10	3	7	10	47	144
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

G. The farthest airplane trip ever taken.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Over an airport	1	0	1													1	2	1	3				0	1	1	1	1	2	6	2	3	5										1	0	1	6	13
2. Over a city				1	0	1										1				1	1	2							2				0	1	1	3	0	3							4	7
3. Canton, Mass. to Boston																	1	0	1										1																	1
4. Boston to New York																							1	0	1				1																	1
5. Revere to Malden																																				1	0	1							1	1
6. Revere to Boston																																				1	0	1							1	1
7. Mass. to Cal.																																				1	0	1							1	1
No response	7	13	20	14	13	27	23	30	53	20	11	31	10	10	20	151	47	42	89	17	10	27	11	13	24	2	5	7	147	40	29	69	9	9	18	22	17	39	14	10	24	12	15	27	177	475
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

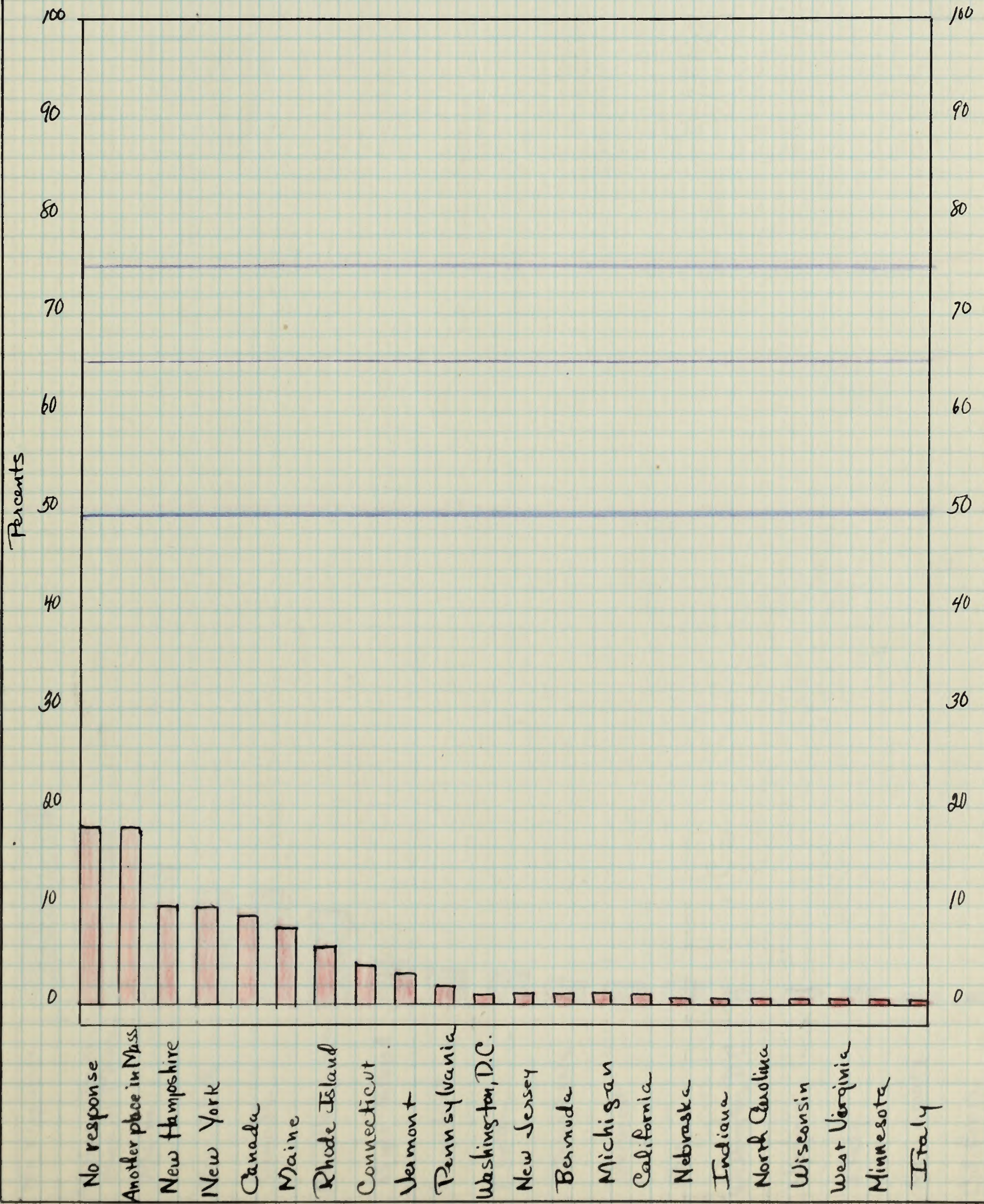
GRAPH 25 - SHOWING IN PERCENTS THE FARTHEST PLACES PUPILS IN GRADES 6, 7 and 8 HAVE EVER BEEN FROM WHERE THEY NOW LIVE.



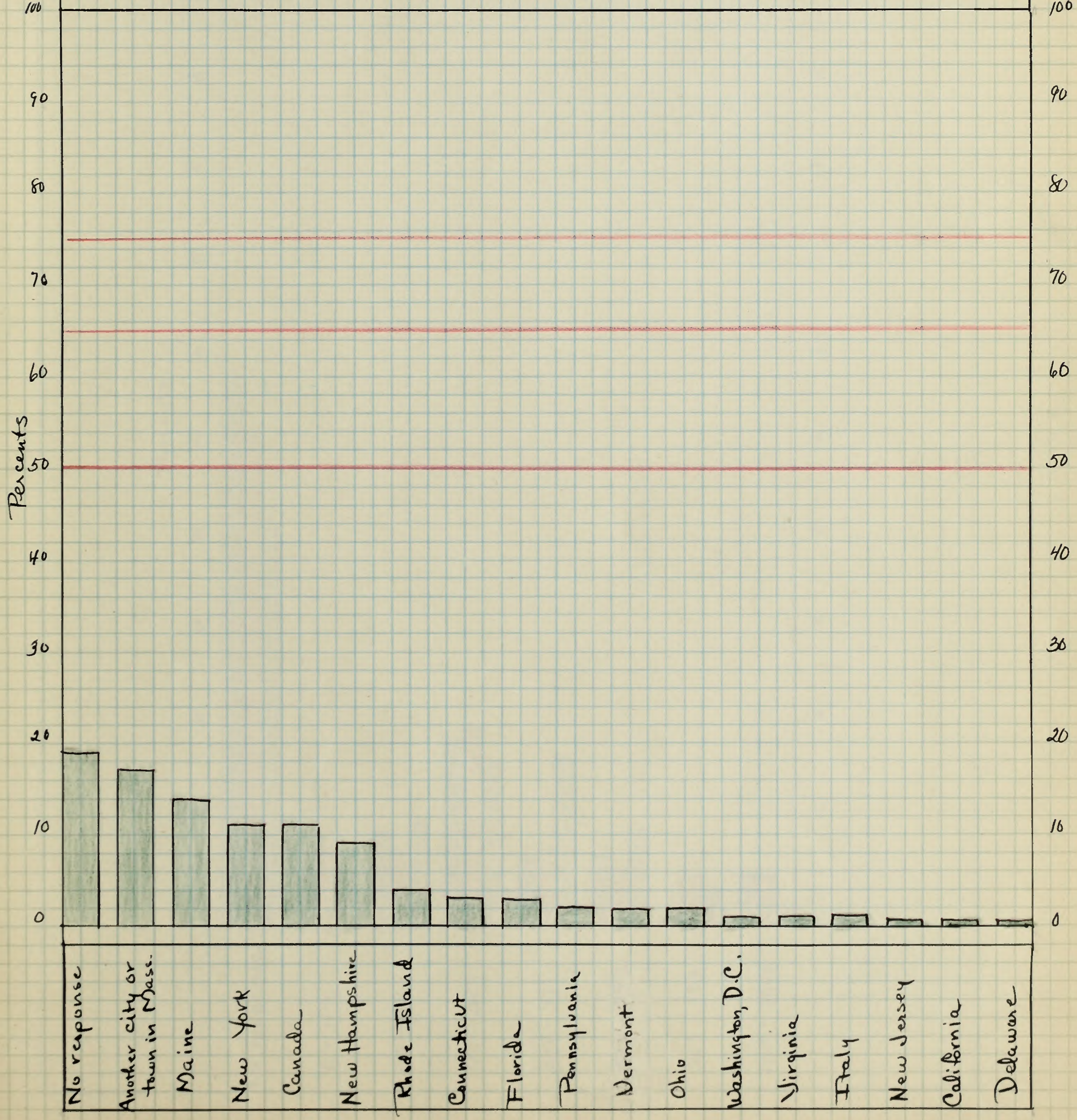
GRAPH 26 - SHOWING THE FARTHEST PLACE PUPILS IN GRADE 6 HAVE BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



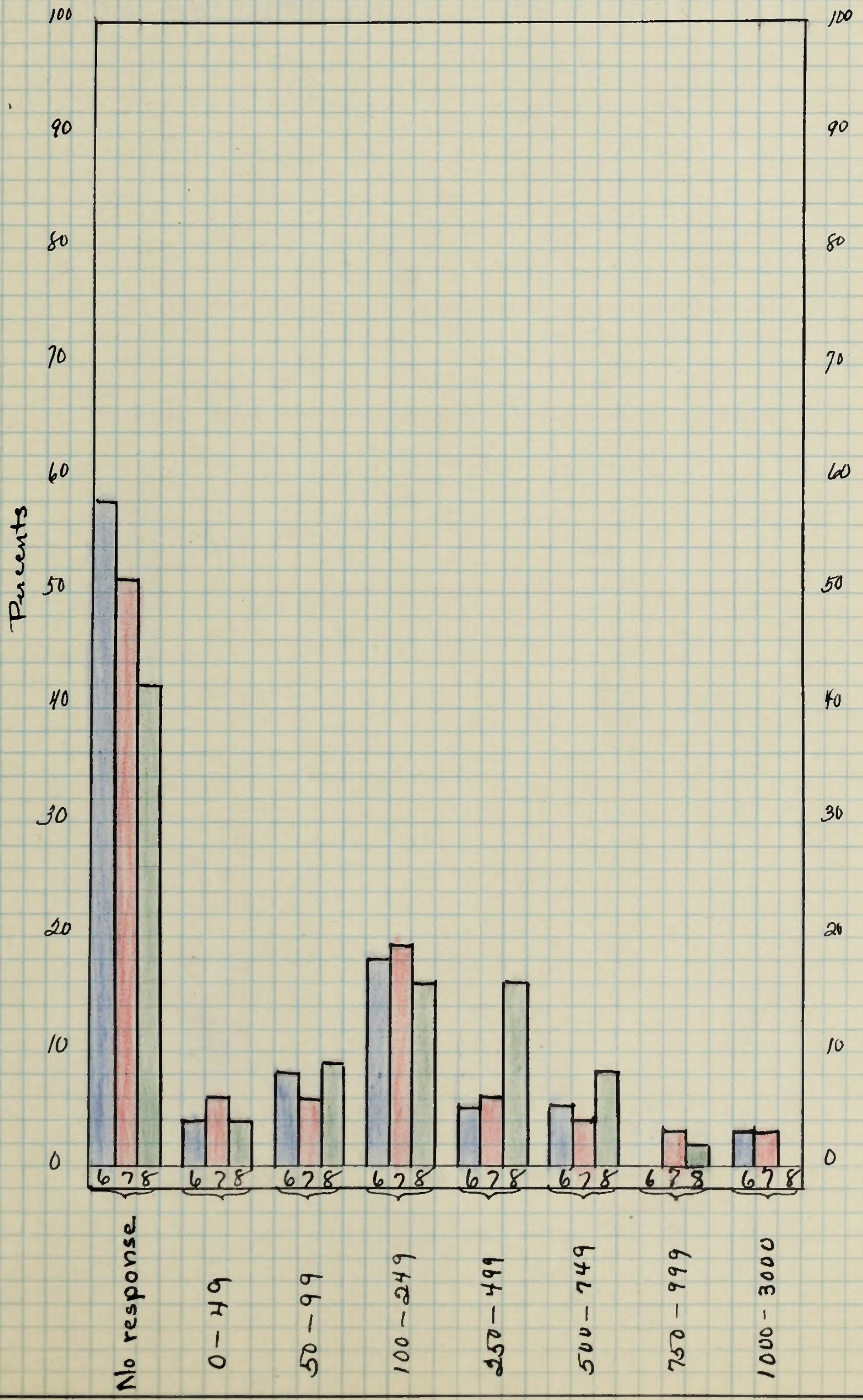
GRAPH 27- SHOWING THE FARTHEST PLACE PUPILS IN GRADE 7 HAVE BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC



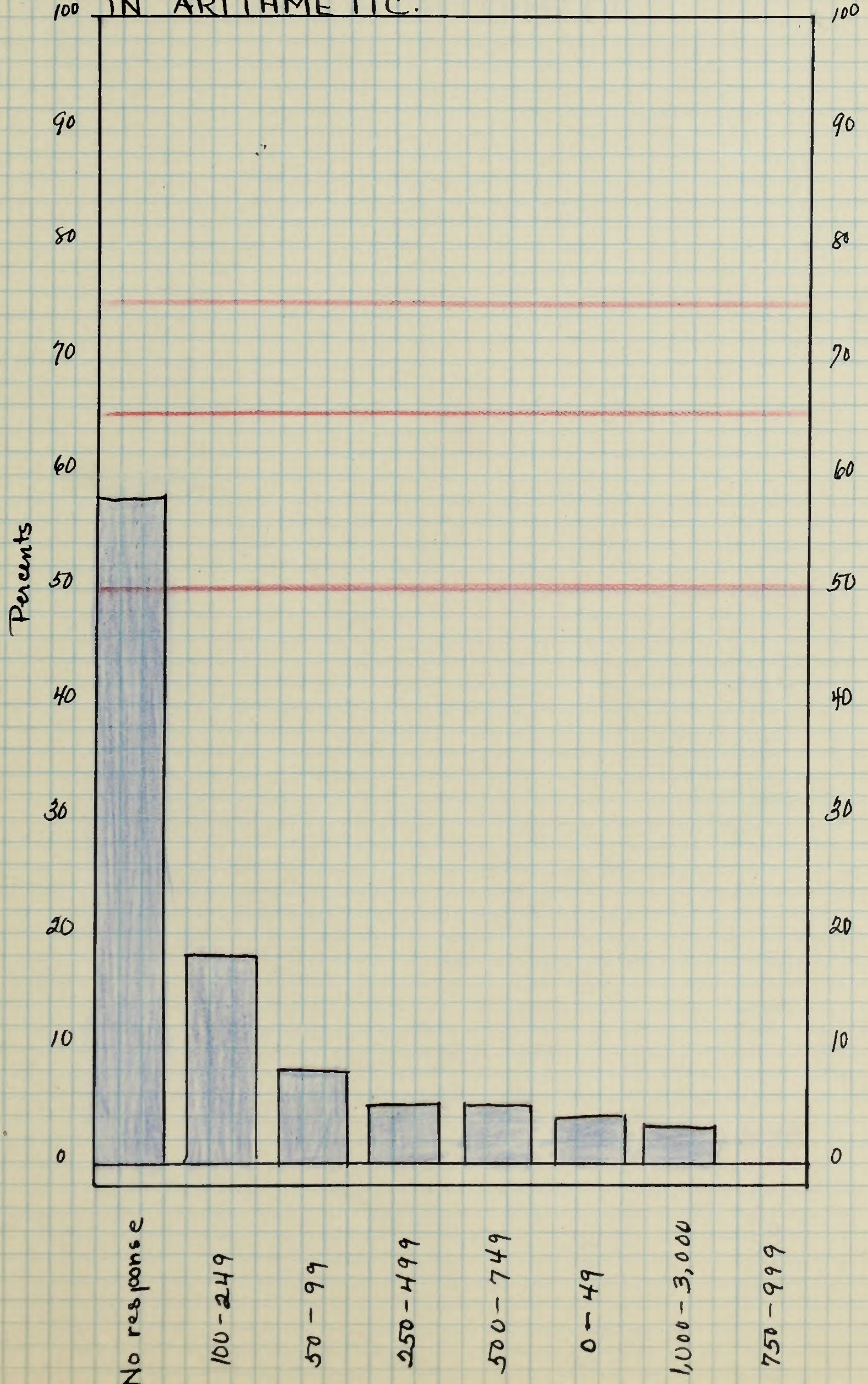
GRAPH 28 - SHOWING THE FARTHEST PLACE PUPILS IN GRADE 8 HAVE BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



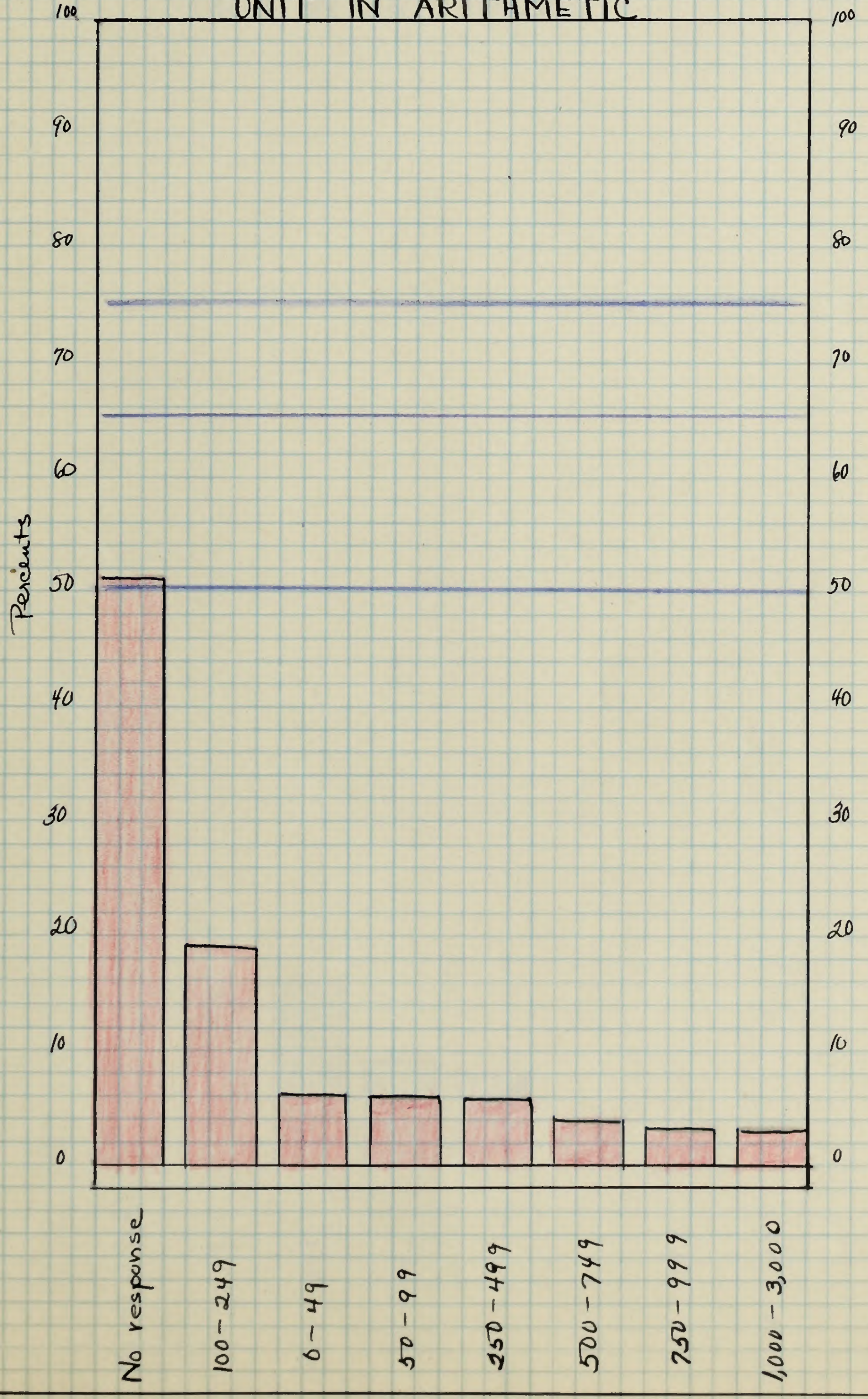
GRAPH 29- SHOWING THE GREATEST NUMBER OF MILES PUPILS OF GRADES 6, 7, and 8 HAVE BEEN FROM WHERE THEY NOW LIVE.



GRAPH 30 - SHOWING THE GREATEST NUMBER OF MILES PUPILS IN GRADE 6 HAVE EVER BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 31 - SHOWING THE GREATEST NUMBER OF MILES PUPILS IN GRADE 7 HAVE EVER BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC



GRAPH 32- SHOWING THE GREATEST NUMBER OF MILES PUPILS IN GRADE 8 HAVE EVER BEEN FROM WHERE THEY NOW LIVE WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

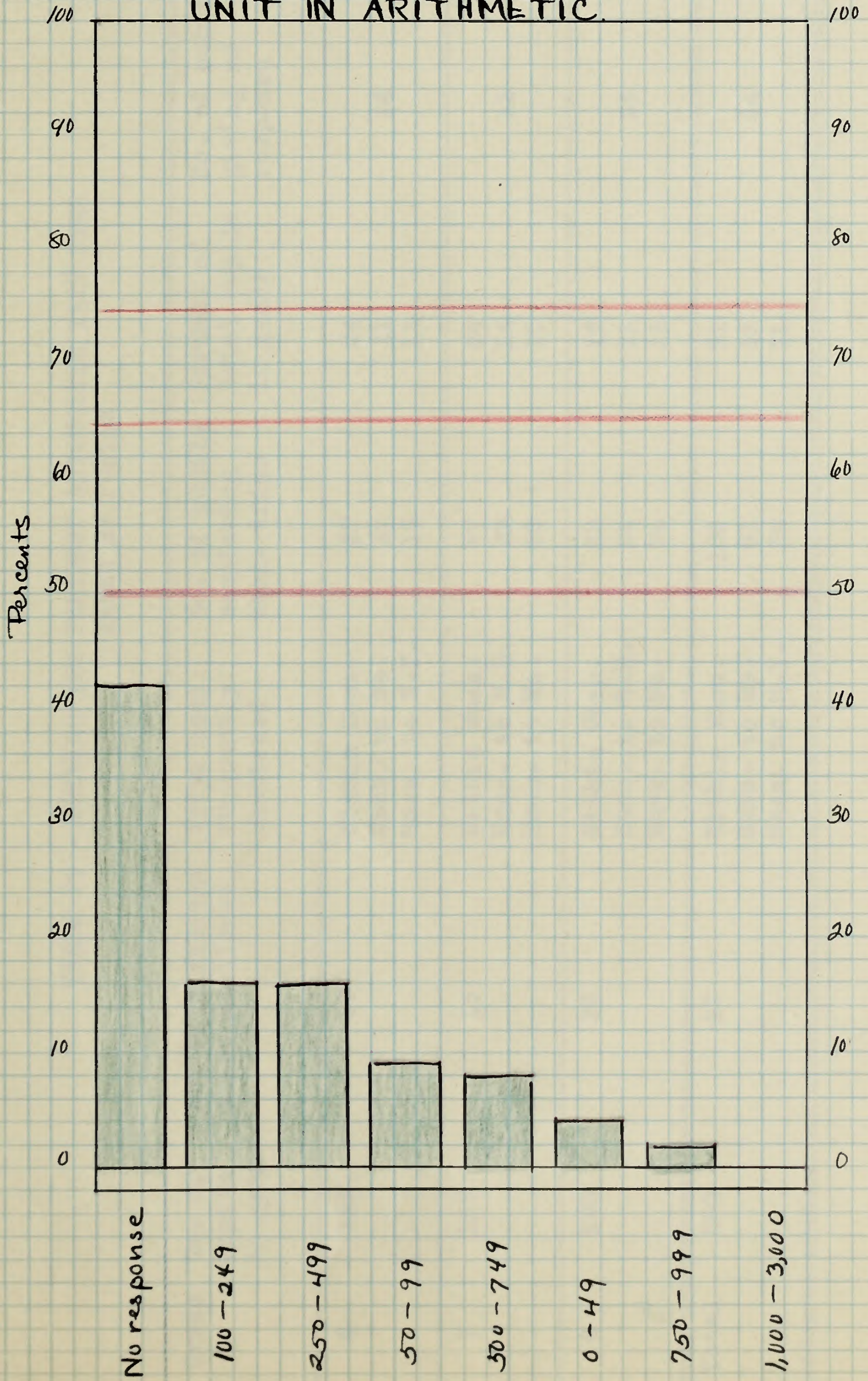


TABLE 37 - SHOWING THE FARTHEST AUTOMOBILE TRIP EVER TAKEN BY PUPILS

Grade	No. of pupils in grade	No. of different trips mentioned	Trips most frequently mentioned	No. of pupils mentioning these trips	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	19	Within Mass.	37	24	26	17
			Mass. to Me.	17	11		
			Mass. to N.Y.	17	11		
7	157	15	Within Mass.	37	24	12	8
			Mass. to N.H.	22	14		
			Mass. to Me.	20	13		
8	190	21	Within Mass.	32	17	26	14
			Mass. to N.H.	24	13		
			Mass. to Me.	24	13		
Total	500	27	Within Mass.	106	21	64	13
			Mass. to Me.	61	12		
			Mass. to N.Y.	55	11		

TABLE 38 - SHOWING THE FARTHEST TRAIN TRIP EVER TAKEN BY PUPILS

Grade	No. of pupils in grade	No. of different trips mentioned	Trips most frequently mentioned	No. of pupils mentioning these trips	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	15	Within Mass.	51	33	74	48
			Mass. to Me.	5	3		
7	157	13	Within Mass.	61	39	63	40
			Mass. to N.Y.	8	5		
			Mass. to Me.	5	3		
8	190	24	Within Mass.	65	34	64	34
			Mass. to N.Y.	10	5		
			Mass. to N.H.	8	4		
Total	500	31	Within Mass.	177	35	201	40
			Mass. to N.Y.	21	4		
			Mass. to Me.	16	3		

TABLE 39 - SHOWING THE FARTHEST BOAT TRIP EVER TAKEN BY PUPILS

Grade	No. of pupils in grade	No. of different trips mentioned	Trips most frequently mentioned	No. of pupils mentioning these trips	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	19	Boston to Nantasket	8	5	108	71
			Boston to Provincetown	7	5		
			Boston to New York	5	3		
7	157	22	Boston to Nantasket	18	11	87	55
			Boston to New York	10	6		
			On a lake	8	5		
8	190	30	Boston to Provincetown	16	8	107	56
			Boston to Nantasket	16	8		
			Boston to New York	5	3		
			Boston to Nova Scotia	5	3		
Total	500	45	Boston to Nantasket	42	8	302	60
			Boston to Provincetown	29	6		
			Boston to New York	20	4		

TABLE 40 - SHOWING THE FARTHEST BUS TRIP EVER TAKEN BY PUPILS

Grade	No. of pupils in grade	No. of different trips mentioned	Trips most frequently mentioned	No. of pupils mentioning these trips	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	10	Within Mass.	46	30	55	36
			Local	38	25		
			Mass. to R.I.	3	2		
7	157	7	Within Mass.	49	31	42	8
			Local	48	31		
			Mass. to R.I.	8	5		
8	190	13	Within Mass.	60	32	47	9
			Local	49	26		
			Mass. to N.Y.	11	6		
Total	500	14	Within Mass.	155	31	144	29
			Local	135	27		
			Mass. to R.I.	17	3		

TABLE 41 - SHOWING THE FARTHEST AIRPLANE TRIP EVER TAKEN BY PUPILS

Grade	No. of pupils in grade	No. of different trips mentioned	Trips most frequently mentioned	No. of pupils mentioning these trips	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	2	Over an airport	1	.7	151	98
			Over a city	1	.7		
7	157	4	Over an airport	6	4.0	147	94
			Over a city	2	1.0		
8	190	5	Over an airport	6	3.0	177	94
			Over a city	4	2.0		
Total	500	7	Over an airport	13	3.0	475	95
			Over a city	7	1.0		

I. Data on Occupations.-- Table 42 gives in summary form all the data on occupations secured through the questionnaire.

Graph 33 simplifies a portion of the data of table 42. In this graph, four of the six items show gradual increases in percents for each grade. Of the sixth grade, 48% have been through a factory, of the seventh grade 59%, and of the eighth grade 71%. 47% of grade 6 have been in a large office building, 50% of grade 7, and 69% of grade 8. 90% of the sixth grade have been in a large department store, of grade 7, 94%, and of grade 8, 95%, while 78% of grade 6 have been in a bank, 84% of grade 7, and 89% of grade 8. The above four experiences, showing an increase in the percent for each grade, seem to indicate that increasing grade brings increased experience in these cases. Of those who live on a farm, there are 14% of grade 6, 20% of grade 7, and 17% of grade 8. However, most of those who do not live on a farm have visited one, as is shown by 78% of grade 6, and 71% of grades 8 and 9.

Graph 34 shows the knowledge of certain occupations of the pupils in the sixth grade arranged in descending bars with the three standards. Half of the items reach a standard, 90% of the pupils having been in a department store, 77% in a bank, and 77% having visited on a farm.

In grade 7, five of the six items reach a standard, which is shown in graph 35. 92% of the pupils have been in a large department store, 84% have been in a bank, 71% have visited a farm, 59% have been through a factory, and 50% have been in a large office building.

Graph 36 shows the same experiences reaching a standard in grade 8 as in grade 7 though with different percents. 95% have been in a

large department store, 89% have been in a bank, 71% have visited a farm, 71% have been through a factory, and 69% have been in a large office building.

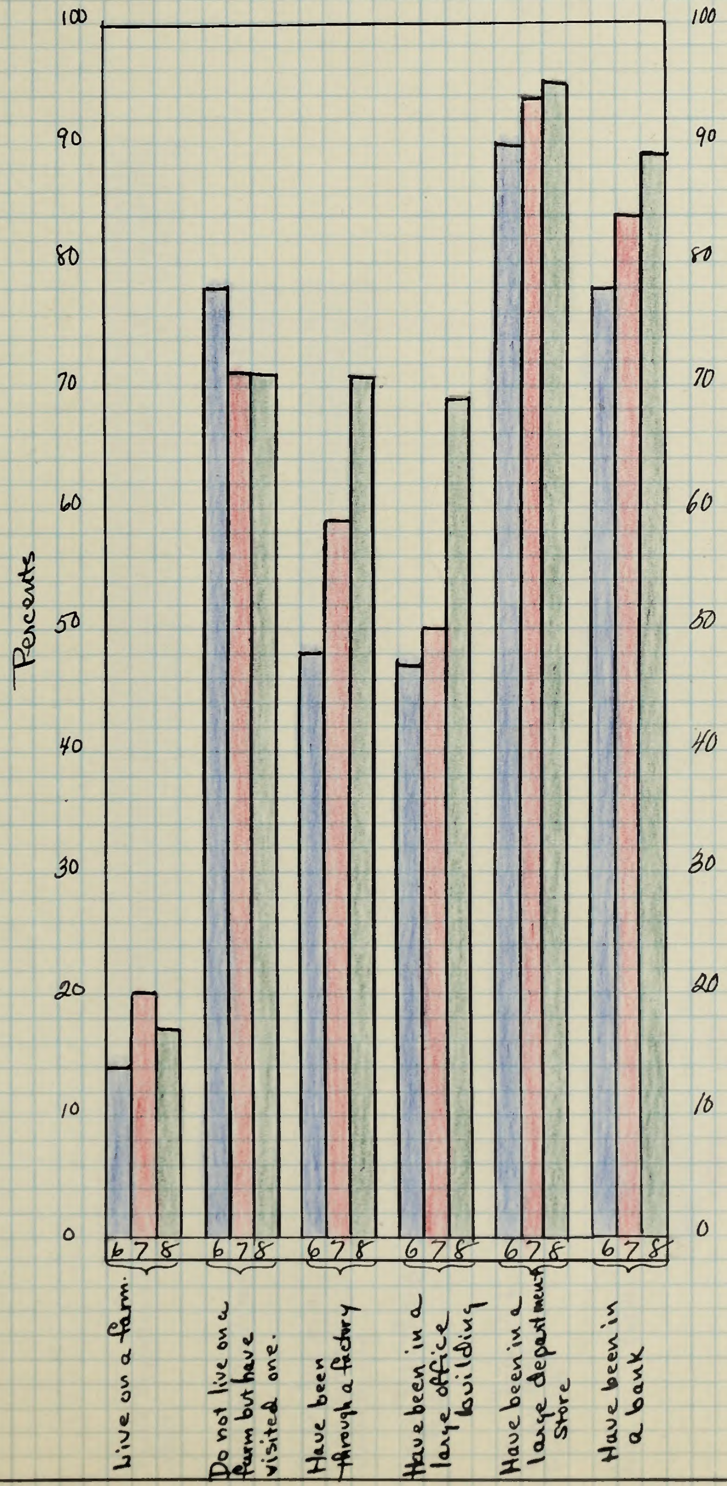
Table 43 shows the occupations of the fathers of the pupils, information which helps one judge the home advantages of the children.

TABLE 42 - SHOWING THE KNOWLEDGE OF OCCUPATIONS OF PUPILS.

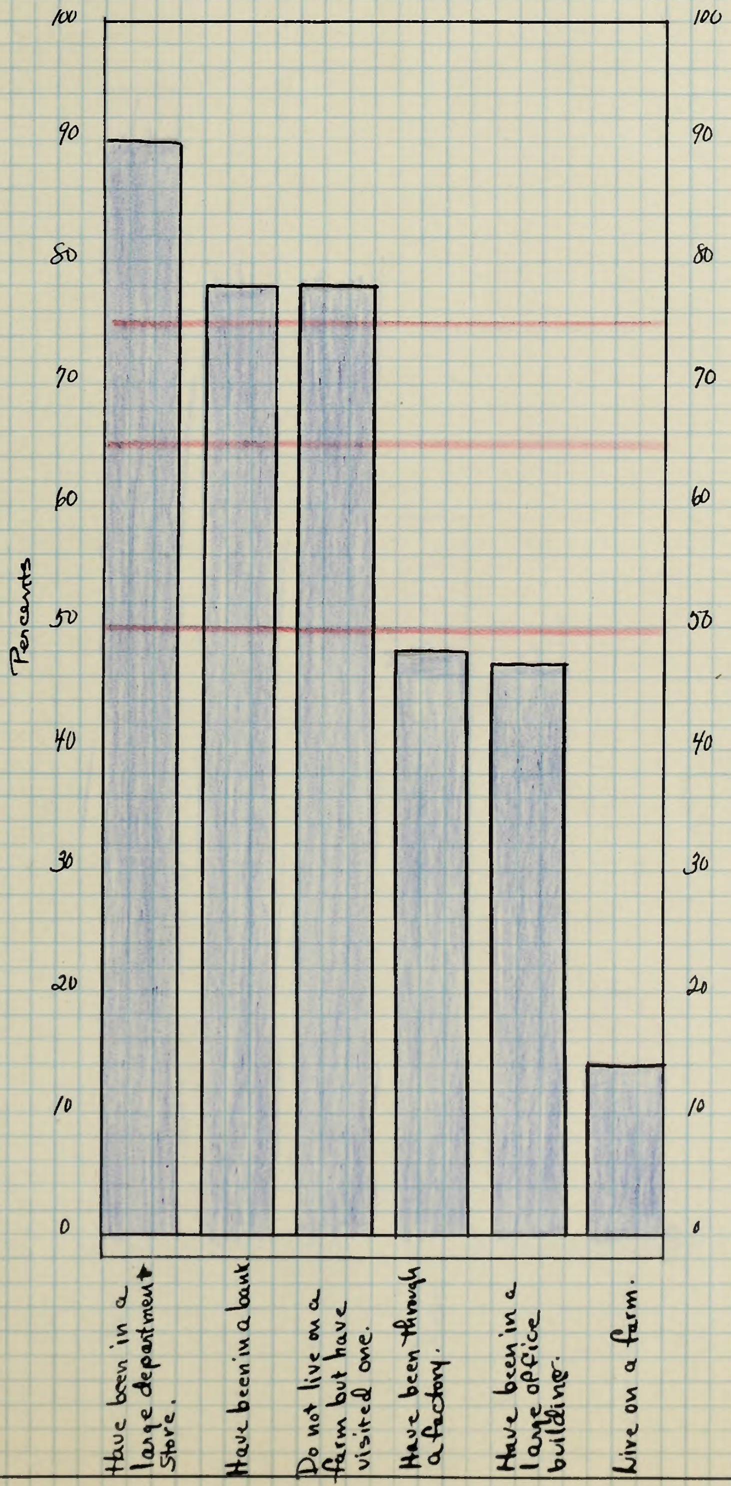
A. Knowledge of various occupations.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Live on a farm.	0	2	2	3	1	4	3	2	5	4	3	7	1	3	4	22 14%	6	2	8	8	4	12	3	3	6	2	4	6	32 20%	5	3	8	2	2	4				3	4	7	8	6	14	33 17%	87 17%
2. Do not live on a farm but have visited one.	5	6	11	12	12	24	19	22	41	15	5	20	6	8	14	120 78%	39	35	74	10	6	16	9	8	17	1	3	4	111 71%	36	25	61	6	7	13	22	12	34	9	5	14	5	7	12	134 71%	365 73%
3. Have been through a factory	8	3	11	10	5	15	15	15	30	10	3	13	3	2	5	74 48%	38	28	66	12	2	14	5	1	6	3	4	7	93 59%	35	17	52	6	8	14	23	15	38	7	6	13	9	8	17	134 71%	301 60%
4. Have been in a large office building	2	2	4	8	5	13	12	15	27	12	7	19	6	3	9	72 47%	27	19	48	8	2	10	7	6	13	3	5	8	79 50%	25	20	45	7	7	14	27	13	40	5	5	10	12	10	22	131 69%	282 56%
5. Have been in a large department store	8	11	19	14	12	26	21	29	50	17	8	25	10	7	17	137 90%	47	39	86	17	10	27	12	13	25	3	6	9	147 94%	40	32	72	9	8	17	28	17	45	12	8	20	13	13	26	180 95%	464 93%
6. Have been in a bank.	7	9	16	12	13	25	18	26	44	16	8	24	6	5	11	120 78%	44	37	81	16	7	23	8	11	19	3	6	9	132 84%	37	30	67	6	8	14	28	17	45	11	8	19	13	12	25	170 89%	422 84%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. Occupation of father	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Office worker	1	0	1				0	2	2	1	0	1				4	0	1	1				1	0	1				2							0	1	1				0	1	1	2	8
2. Rug maker	1	0	1													1																														1
3. Book binder	1	0	1													1																				1	0	1							1	2
4. Druggist	1	0	1													1																														1
5. Mill worker	1	1	2	4	3	7	6	4	10	2	1	3				22	7	14	21	4	0	4	2	1	3	0	1	1	29	11	8	19	3	4	7	1	3	4	2	1	3	1	2	3	36	87
6. Machinist	0	1	1				1	3	4							5	4	3	7										7	2	1	3													3	15
7. Signal man	0	1	1													1																														1
8. Policeman	0	1	1				0	1	1							2	1	0	1										1																	3
9. Tinsmith	0	1	1													1	1	0	1										1	1	0	1													1	3
10. Foreman	0	1	1				0	2	2							3														0	1	1				0	1	1							2	5
11. Janitor	0	1	1	0	1	1	1	0	1							3	1	0	1										1																	4
12. Town employee	0	1	1										0	1	1	2	4	0	4	1	0	1							5	0	4	4	0	1	1										5	12
13. Road construction	0	1	1													1																														1
14. Painter				1	0	1										1	1	0	1	0	1	1	0	2	2				4	1	0	1	1	0	1	1	0	1	1	0	1				4	9
15. Telephone lineman				2	0	2										2	0	1	1										1													1	0	1	1	4
16. Store Merchant				1	2	3	0	1	1							4	0	1	1										1	1	0	1	3	0	3	2	1	3							7	12
17. WPA				2	0	2				1	0	1				3	1	1	2				0	3	3				5	0	2	2							1	3	4	1	0	1	7	15
18. Gardener				1	0	1										1																										1	0	1	1	2
19. Salesman				1	0	1	2	0	2				2	0	2	5	2	3	5							1	1	2	7	1	0	1	0	1	1	3	2	5	1	0	1	2	1	3	11	23
20. Engineer				0	1	1	1	1	2	1	0	1				4	0	1	1	1	0	1							2	0	2	2										1	0	1	3	9
21. Bar tender				0	1	1										1																														1
22. Street cleaner							1	0	1							1																														1
23. Draftsman							1	0	1							1																							1	0	1				1	2
24. Barber							2	0	2	1	0	1				3	0	1	1										1							2	0	2							2	6
25. Farm worker							1	1	2							2	2	0	2										2																	4
26. Junk dealer							1	0	1							1																														1
27. Mason							1	0	1	0	1	1				2																														2
28. Moulder							0	1	1							1	1	1	2										2	0	1	1													1	4
29. Carpenter							0	1	1	1	1	2	0	1	1	4	2	0	2										2	1	0	1	1	0	1	1	0	1	1	0	1	0	1	1	5	11
30. Printer							0	1	1							1	1	1	2										2	1	0	1													1	4
31. Postmaster							0	1	1							1																														1
32. Truck driver							0	2	2							2	1	0	1										1	2	0	2													2	5
33. Watchman							0	1	1							1	4	0	4										4																	5
34. Florist										1	0	1				1				1	0	1							1																	2
35. Dentist										1	1	2				2							0	1	1				1																	3
36. Farmer										1	2	3	1	3	4	7				4	4	8				0	2	2	10	2	1	3	0	1	1	1	0	1	2	0	2	1	5	6	13	30
37. College instructor													1	0	1	1																														1
38. Railroad lamplighter													1	0	1	1																														1
39. Chemist													1	0	1	1																														1
40. Mailman													1	1	2	2	1	0	1										1																	3
41. Mechanic													0	1	1	1	2	1	3	0	1	1	1	0	1				5	0	1	1	1	0	1							1	0	1	3	9
42. Tree surgeon													0	1	1	1																														1
43. Woodworker																	1	0	1										1							2	0	2							2	3
44. Inventor																	1	1	2										2																	2
45. Banker																	1	0	1										1	1	0	1										1	0	1	2	3
46. Freight Clerk																	1	0	1										1																	1
47. Electrician																	1	0	1										1							2	0	2							2	3
48. Agricultural Agent																	1	0	1										1																	1
49. Waiter																	0	1	1										1																	1
50. Accountant																	0	1	1										1																	1
51. Gas station attendant																	0	1	1				1	0	1				2										1	0	1				1	3
52. Taxi driver																	0	1	1										1																	1
53. Baker																	0	1	1										1																	1
54. Plumber																				1	0	1							1																	1
55. Traffic manager																				1	0	1							1				0	1	1										1	2
56. Weaver																				1	0	1							1																	1
57. Minister																				0	1	1							1																	1
58. Shoemaker																							1	0	1				1							2	1	3							3	4
59. Writer of advertising																							1	0	1				1																	1
61. Caretaker																							1	0	1				1																	1
61. General Motors manager.																							0	1	1				1																	1
62. Architect																										1	0	1	1																	1
63. Professor																										1	0	1	1																	1
64. Fireman																														2	1	3													3	3
65. Machine Co. President.																														1	0	1													1	1
66. Patternmaker																														2	0	2													2	2
67. Inspector																														1	1	2													2	2
68. Probation officer																														1	0	1													1	1
69. Tailor																														1	0	1				5	1	6							7	7
70. Bookkeeper																														0	1	1													1	1
71. Station agent																														0	1	1													1	1
72. Restaurant owner																														0	1	1													1	1
73. Bridge tender																														0	1	1													1	1
74. Contractor																														0	1	1													1	1
75. Train announcer																																	0	1	1										1	1
76. Musician																																				1	0	1							1	1
77. Magazine Distributor																																				1	0	1							1	1
78. Upholsterer																																				1	0	1	1	0	1				2	2
79. Sausage maker																																				0	1	1							1	1
80. Fisherman																																							1	0	1				1	1
81. Handicraft																																							1	0	1				1	1
82. Blacksmith																																							0	1	1				1	1
83. Railroad Employee																																							0	1	1	0	1	1	2	2
84. Chemical Co. Vice-Pres.																																										1	0	1	1	1
85. Doctor.																																										0	1	1	1	1
No response.	3	4	7	3	5	8	5	8	13	10	5	15	3	2	5	48	8	9	17	4	4	8	3	6	9	0	2	2	36	10	4	14	0	1	1	3	5	8	2	3	5	2	3	5	33	117
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

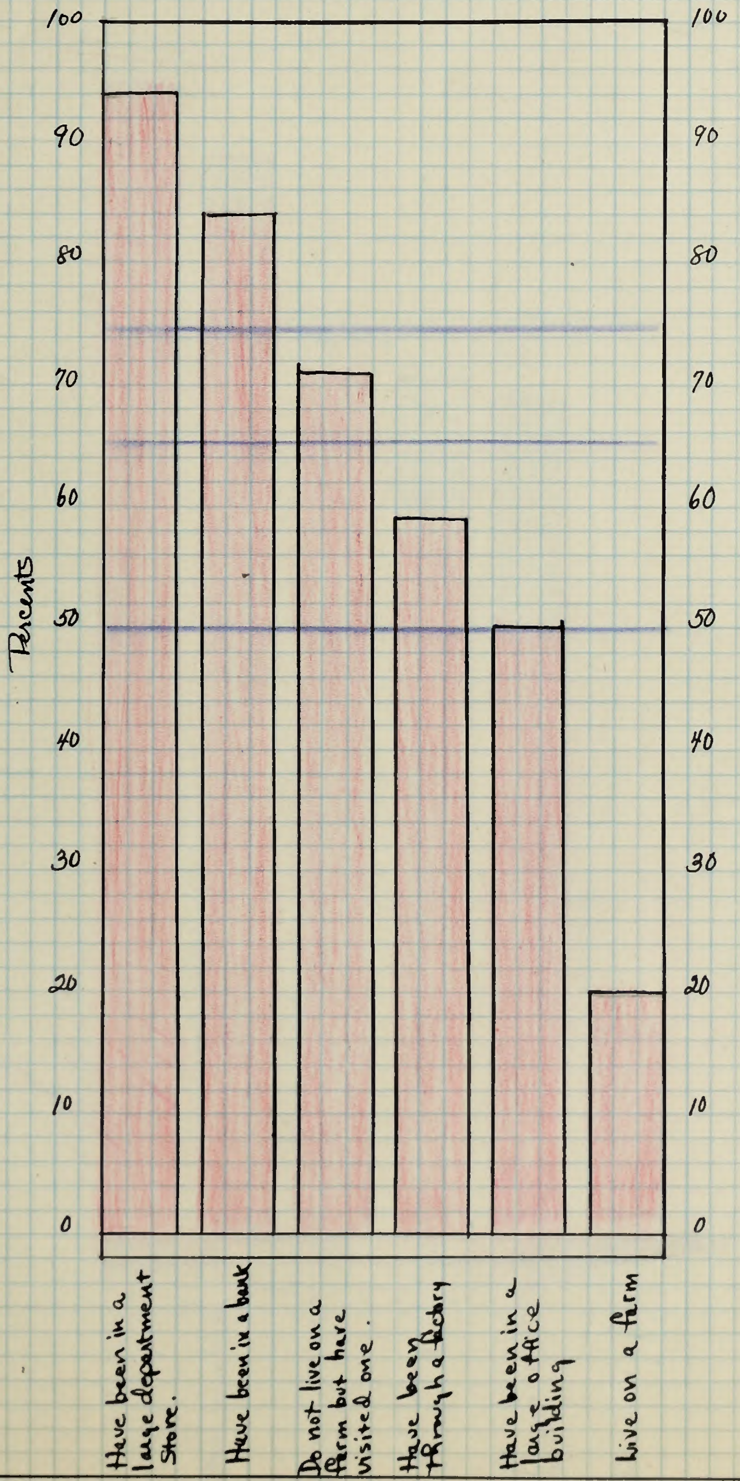
GRAPH 33- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 WHO HAVE A KNOWLEDGE OF CERTAIN OCCUPATIONS.



GRAPH 34- SHOWING THE KNOWLEDGE IN CERTAIN OCCUPATIONS OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 35- SHOWING THE KNOWLEDGE IN CERTAIN OCCUPATIONS OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 36- SHOWING THE KNOWLEDGE IN CERTAIN OCCUPATIONS OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

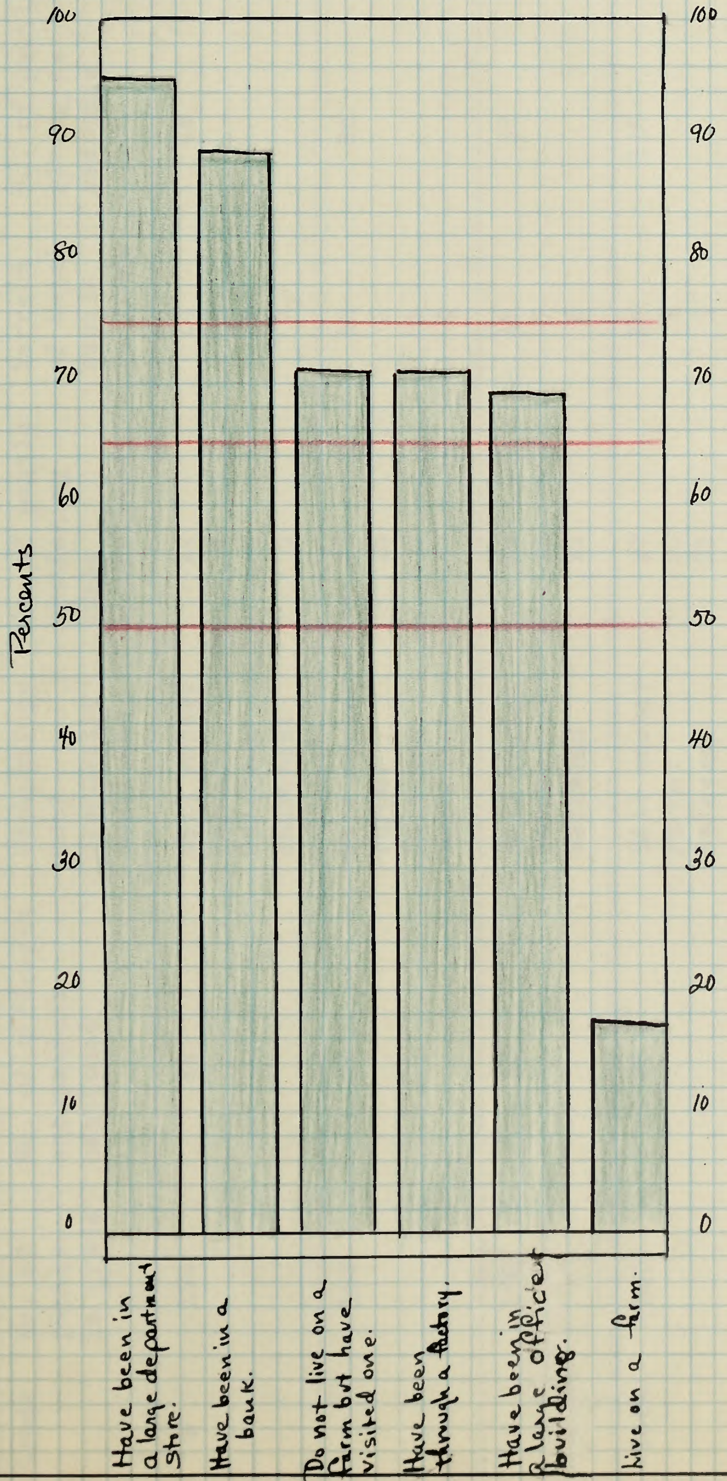


TABLE 43 - SHOWING THE OCCUPATIONS OF THE FATHERS OF THE PUPILS

Grade	No. of pupils in grade	No. of different occupations mentioned	Occupations most frequently mentioned	No. of pupils mentioning these occupations	Percent of total pupils in grade	No. of pupils giving no response	Percent of total pupils in grade
6	153	42	Mill worker	22	14	48	31
			Farmer	7	5		
			Salesman	5	3		
			Machinist	5	3		
7	157	46	Mill worker	29	18	36	23
			Farmer	10	6		
			Salesman	7	4		
			Machinist	7	4		
8	190	50	Mill worker	36	19	33	17
			Farmer	13	7		
			Salesman	11	6		
Total	500	85	Mill worker	87	17	117	23
			Farmer	30	6		
			Salesman	23	5		

J. Data on Clothing.-- Table 44 shows the experiences of pupils in buying clothing. It is put in graphic form in the pages which follow.

Graph 37 compares experiences in buying clothing of the sixth, seventh and eighth grade pupils used in the study. The fact that 25% of the sixth grade take no part in choosing their clothing, 21% of the seventh grade, and 19% of the eighth grade shows the effect of increasing grade upon this experience. This same effect is shown in the percent of those who discuss clothing prices with an adult. In grade 6, this is 40%, in grade 7 it increases to 54%, and in grade 8 it increases again to 66%. It is interesting to notice how the percents of the other items of this graph vary. 55% of the sixth grade help in choosing their own clothing, 64% of the seventh grade, and only 57% of the eighth grade. This is an unexpected decrease in percent for which the data at hand does not make possible an explanation. 19% of grade 6 choose their clothing without any adult help, 15% of grade 7, and 24% of grade 8. In the sixth grade, 24% go to the store alone to buy shoes, in the seventh grade, 19%, and in the eighth grade, 26%.

Graph 38 shows only one of the clothing experiences of the sixth grade reaching a standard, the 55% who help to choose their own clothing.

In the seventh grade, two clothing experiences reach a standard, as is shown in graph 39 where 64% help choose their own clothing and 54% discuss the prices of clothing with an adult.

Graph 40 shows the clothing experiences of the eighth grade. The same two experiences reach a standard as in grade 7, although in reverse order, 66% having had the experience of discussing clothing prices with an adult, and 57% who help choose their own clothing.

From the above data, the teacher might hesitate to decide to choose a problem-unit based on buying clothing. Ther percents exceeding any of the standards set are few. However, buying clothing is a common adult activity, one which they need to do intelligently. As in travel, the data should probably be interpreted from a social-utility viewpoint rather than a purely statistical one. Because buying clothing is an everyday activity of adult life, it may be correct to recommend this topic as the basis for an informational problem-solving unit even though the experience of the pupils is meager. Such a unit will prove valuable in setting up standards of judgment for adult life.

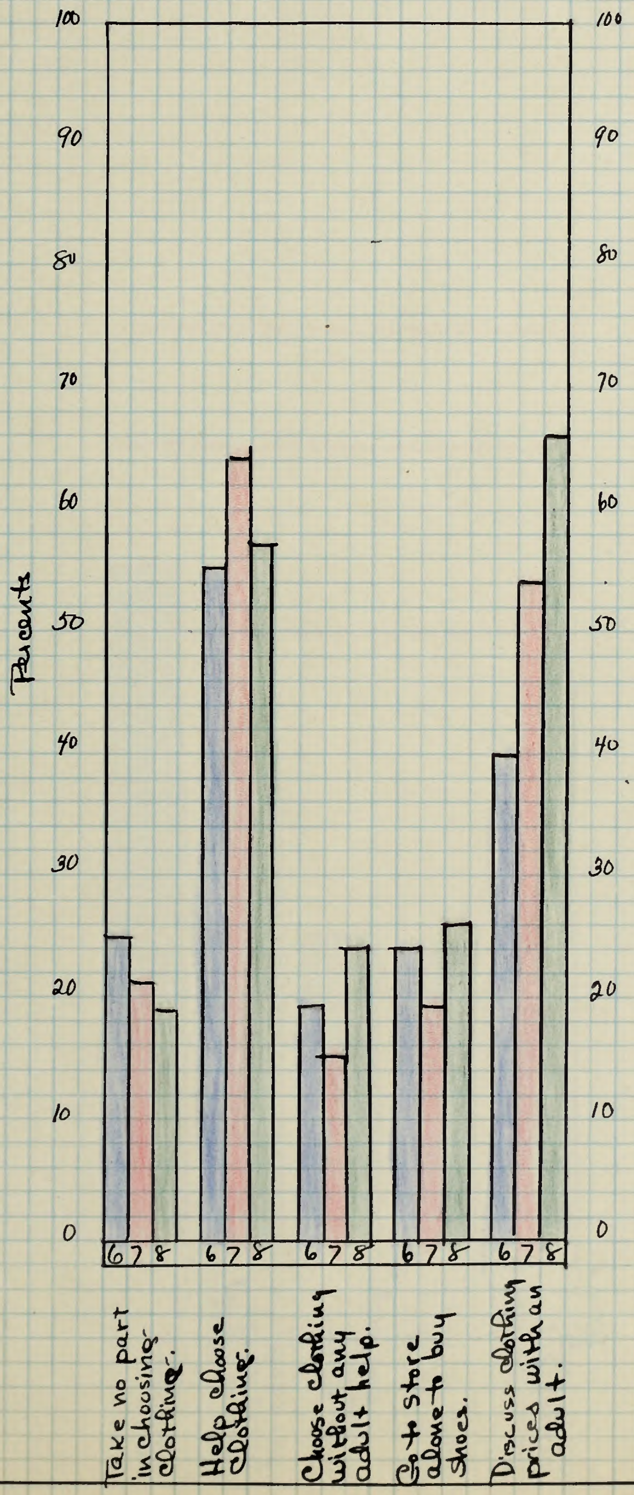
TABLE 44- SHOWING THE EXPERIENCE OF PUPILS IN BUYING CLOTHING

Clothing experiences	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town E			Town F			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Take no part in choosing clothing	1	4	5	2	3	5	7	9	16	4	5	9	2	1	3	38 25%
2. Help choose clothing	5	7	12	11	9	20	13	14	27	12	2	14	5	8	13	86 55%
3. Choose clothing without any adult help.	2	2	4	2	1	3	3	7	10	4	4	8	3	1	4	29 19%
4. Go to store alone to buy shoes.	4	2	6	8	2	10	6	7	13	4	2	6	1	1	2	37 24%
5. Discuss clothing prices with an adult.	3	3	6	8	8	16	13	10	23	4	5	9	3	4	7	61 40%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

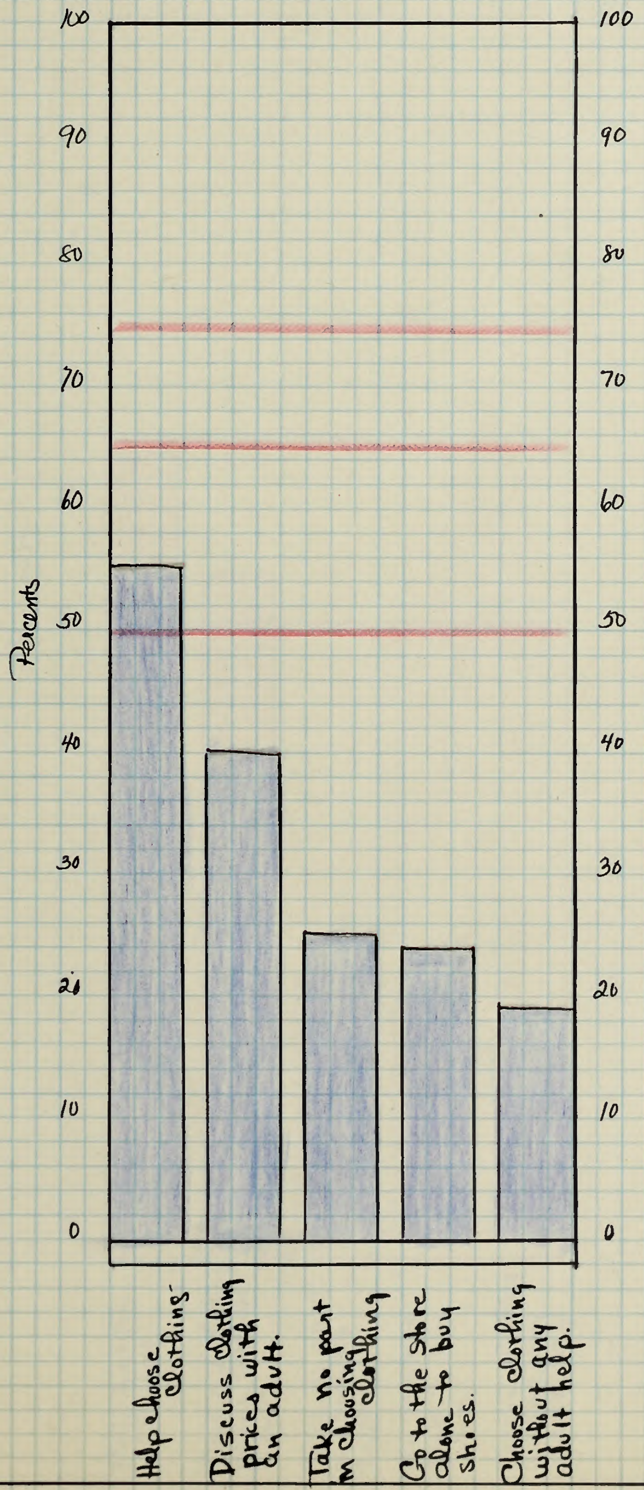
Clothing experiences	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Take no part in choosing clothing	8	9	17	5	0	5	6	5	11				33 21%
2. Help choose clothing	32	30	62	8	11	19	4	7	11	3	6	9	101 64%
3. Choose clothing without any adult help.	10	5	15	5	0	5	1	2	3				23 15%
4. Go to store alone to buy shoes.	13	7	20	4	0	4	2	1	3	1	0	1	28 18%
5. Discuss clothing prices with an adult.	29	27	56	11	4	15	5	5	10	0	4	4	85 54%
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

Clothing experiences	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Take no part in choosing clothing	6	1	7	1	0	1	9	4	13	4	4	8	3	4	7	36 19%	102 22%
2. Help choose clothing	16	28	44	6	9	15	12	12	24	9	1	10	6	9	15	108 57%	295 59%
3. Choose clothing without any adult help.	20	3	23	2	1	3	7	1	8	1	5	6	4	2	6	46 24%	98 20%
4. Go to store alone to buy shoes.	16	3	19	2	2	4	13	4	17	0	2	2	6	2	8	50 26%	115 23%
5. Discuss clothing prices with an adult.	30	22	52	5	7	12	19	13	32	6	6	12	9	9	18	126 66%	272 54%
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

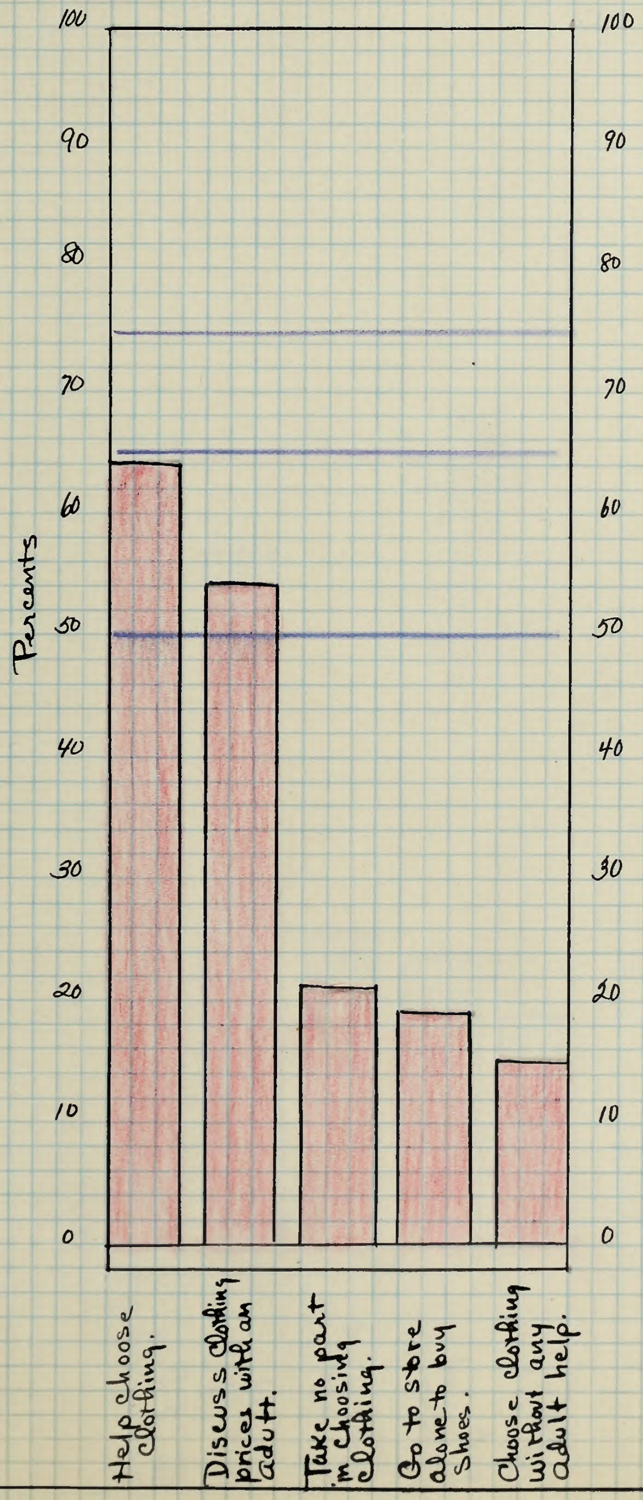
GRAPH 37- SHOWING IN PERCENTS THE CLOTHING EXPERIENCES OF PUPILS IN GRADES 6, 7 and 8.



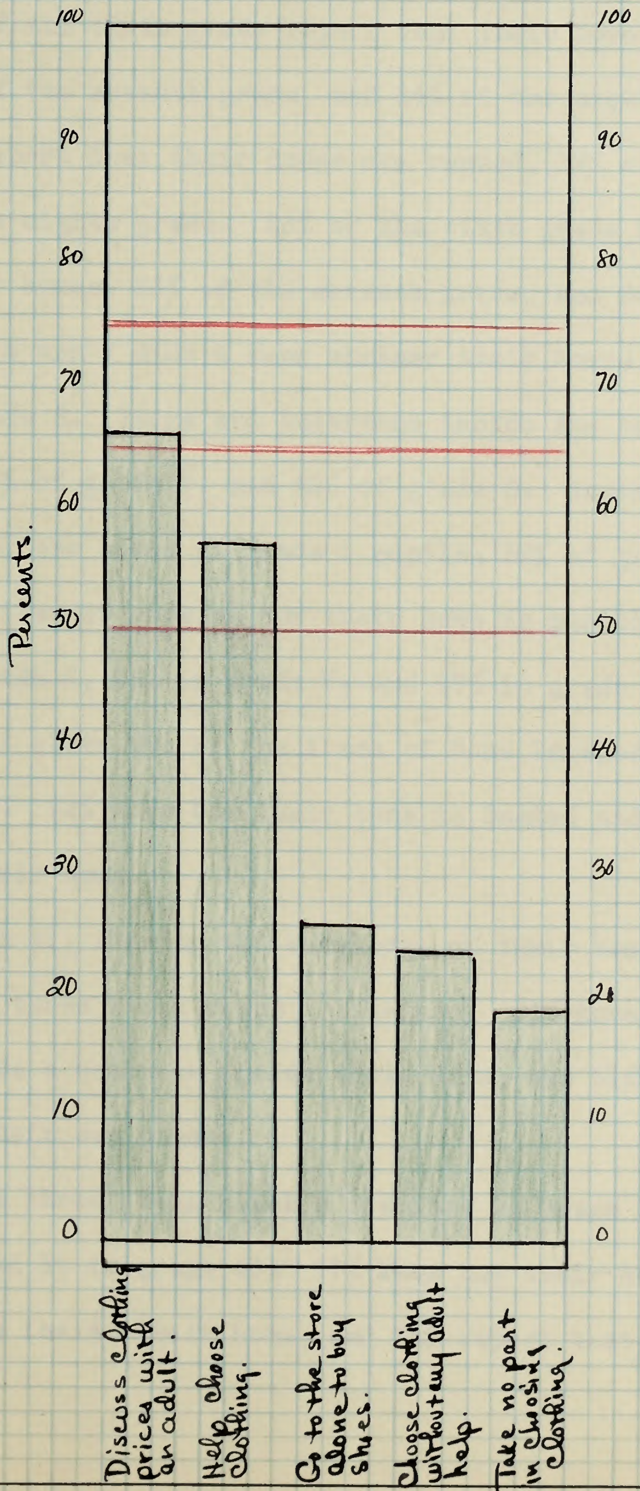
GRAPH 38 - SHOWING THE CLOTHING EXPERIENCES OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 39 - SHOWING THE CLOTHING EXPERIENCES OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 40- SHOWING THE CLOTHING EXPERIENCES OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



K. Data on Homes.-- Table 45 is a summary table showing all the data gathered from the questionnaire on the subject of pupils' knowledge of their homes.

Graph 41 compares the three grades in certain knowledge of their homes. 46% of the sixth grade report that their homes are owned by their family, 51% of the seventh grade, and 54% of the eighth grade. 40% of the sixth grade report that their homes are rented, 35% of the seventh grade, and 36% of the eighth grade. 23% of the sixth grade knew the monthly rent paid for their homes, 16% of the seventh grade, and 24% of the eighth grade. 14% of grades 6 and 7 didn't know whether their homes were owned or rented, and 10% of grade 8. There are bathrooms inside the homes of 82% of the pupils of grade 6, 77% of grade 7, and 82% of grade 8. Iceless refrigerators are found in 26% of the homes of grade 6 pupils, 33% of grade 7, and 35% of grade 8. The item of knowing how their home is heated shows high percents with 92% in grade 6, 98% in grade 7, and 97% in grade 8.

Graph 42 shows two of the items of home knowledge reaching a standard in grade 6. 92% know how their home is heated and 82% have a bathroom inside their home.

In graph 43, showing the knowledge of their homes of pupils of the seventh grade, three items reach a standard. 98% know how their home is heated, 77% have a bathroom inside their home, and 51% report that their families own their own homes.

The same three items reach a standard in graph 44 for the eighth grade as reached it in graph 43. 97% know how their home is heated, 82% have a bathroom inside their home, and 54% report that their families own their homes.

Tables 46 through 50 give further information on the knowledge of their homes and on the home background of the pupils in the study.

TABLE 45 - SHOWING THE KNOWLEDGE OF PUPILS OF THEIR HOMES.

A. Knowledge of homes.	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town E			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Family owns home.	6	8	14	7	6	13	11	12	23	8	4	12	6	3	9	71 46%
2. Family rents home.	1	3	4	8	4	12	7	15	22	9	7	16	4	3	7	61 40%
3. Know monthly rent.	1	2	3	5	3	8	5	10	15	3	2	5	1	3	4	35 23%
4. Didn't know whether home was owned or rented.	1	2	3	0	3	3	5	3	8	3	0	3	0	4	4	21 14%
5. Bathroom inside home.	7	10	17	12	13	25	19	26	45	12	8	20	10	8	18	125 82%
6. Have iceless refrigerator	2	3	5	3	3	6	6	7	13	3	2	5	8	3	11	40 26%
7. Knew how home was heated.	7	11	18	14	10	24	23	29	52	17	11	28	9	10	19	141 92%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

A. Knowledge of homes.	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Family owns home.	24	25	49	12	5	17	4	6	10	2	3	5	81 51%
2. Family rents home.	22	13	35	4	2	6	6	3	9	1	3	4	54 35%
3. Know monthly rent.	9	7	16	1	2	3	4	3	7	1	2	3	29 18%
4. Didn't know whether home was owned or rented.	4	6	10	2	4	6	1	5	6				22 14%
5. Bathroom inside home.	45	39	84	9	5	14	5	6	11	3	5	8	117 75%
6. Have iceless refrigerator	22	10	32	7	2	9	2	3	5	3	3	6	52 33%
7. Knew how home was heated.	50	43	93	18	10	28	11	13	24	3	6	9	154 98%
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

A. Knowledge of homes.	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Family owns home.	24	17	41	5	9	14	10	7	17	8	6	14	9	7	16	102 54%	254 51%
2. Family rents home.	11	12	23	3	0	3	18	10	28	4	3	7	3	5	8	69 36%	184 37%
3. Know monthly rent.	6	5	11	3	0	3	15	9	24	3	0	3	1	1	2	43 24%	107 21%
4. Didn't know whether home was owned or rented.	7	3	10	1	1	2				2	1	3	1	3	4	19 10%	62 12%
5. Bathroom inside home.	38	27	65	4	5	9	27	16	43	9	4	13	13	12	25	155 82%	397 79%
6. Have iceless refrigerator	20	10	30	2	3	5	13	7	20	2	1	3	6	2	8	66 35%	158 32%
7. Knew how home was heated.	40	29	69	9	10	19	28	17	45	14	10	24	13	15	28	185 97%	480 96%
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. Number of rooms in home	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town E			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
25																
17													1	0	1	1
16																
15																
14				1	0	1	2	0	2	1	0	1				4
13																
12							0	2	2							2
11																
10	0	2	2	1	2	3	1	1	2	0	1	1	2	0	2	10
9	0	1	1	2	0	2	1	0	1	1	1	2				6
8	2	3	5	0	1	1	4	6	10	1	0	1	0	2	2	19
7	1	2	3	3	3	6	3	5	8	2	2	4	2	3	5	26
6	3	4	7	1	4	5	5	6	11	3	0	3	1	1	2	28
5	1	1	2	3	0	3	1	4	5	4	3	7	2	3	5	22
4				2	1	3	4	3	7	1	1	2				12
3				0	2	2	1	1	2	2	0	2				6
2							0	1	1							1
No response	1	0	1	2	0	2	1	1	2	5	3	8	2	1	3	16
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

B. Number of rooms in home	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
25													
17													
16	0	1	1							0	1	1	2
15										1	0	1	1
14													
13				1	1	2	0	1	1				3
12				0	1	1				1	0	1	2
11	2	0	2	1	0	1	1	0	1				4
10	2	2	4	1	0	1	1	0	1	1	1	2	8
9	4	3	7				1	1	2				9
8	4	7	11	1	1	2	2	1	3	0	2	2	18
7	12	16	28	4	3	7	0	3	3	0	1	1	39
6	15	7	22	7	1	8	4	5	9	0	1	1	40
5	6	3	9	1	2	3	2	2	4				16
4	3	3	6	1	0	1	0	1	1				8
3	0	1	1	1	0	1							2
2													
No response	2	1	3	0	2	2							5
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

B. Number of rooms in home	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
25													1	0	1	1	1
17																	1
16							1	0	1							1	3
15	0	2	2													2	3
14													0	1	1	1	5
13													0	2	2	2	5
12	1	1	2	1	1	2	1	0	1	1	1	2	1	1	2	9	13
11	2	2	4	0	1	1										5	9
10	5	0	5							1	1	2				7	25
9	3	2	5							1	1	2	1	1	2	9	24
8	7	5	12	0	1	1	1	0	1	2	1	3	3	2	5	22	59
7	8	5	13	2	1	3	3	2	5	0	1	1	2	3	5	27	92
6	7	11	18	3	5	8	8	7	15	4	1	5	2	3	5	51	119
5	3	3	6	3	0	3	11	6	17	3	4	7	2	0	2	35	73
4	3	0	3				2	2	4	1	0	1	1	2	3	11	31
3																	8
2				0	1	1										1	2
No response	3	1	4				1	0	1	1	0	1				6	27
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

C. Monthly rent paid.	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
$125 - $129																
120 - 124																
115 - 119																
110 - 114																
105 - 109																
100 - 104																
95 - 99																
90 - 94																
85 - 89																
80 - 84																
75 - 79																
70 - 74																
65 - 69																
60 - 64																
55 - 59																
50 - 54																
45 - 49																
40 - 44							0	1	1							1
35 - 39							1	1	2							2
30 - 34							0	2	2							2
25 - 29				0	1	1	2	2	4				0	1	1	6
20 - 24	1	1	2				0	3	3	1	0	1	1	2	3	9
15 - 19	0	1	1	2	1	3	1	1	2	2	1	3				9
10 - 14				3	1	4	1	0	1	0	1	1				6
5 - 9																
No response	0	1	1	3	1	4	2	5	7	6	5	11	3	0	3	26
Total pupils whose homes are rented.	1	3	4	8	4	12	7	15	22	9	7	16	4	3	7	61 40%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

C. Monthly rent paid.	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
$125 - $129										0	1	1	1
120 - 124													
115 - 119													
110 - 114													
105 - 109													
100 - 104													
95 - 99													
90 - 94										1	1	2	2
85 - 89													
80 - 84													
75 - 79													
70 - 74													
65 - 69													
60 - 64													
55 - 59													
50 - 54													
45 - 49													
40 - 44	1	0	1										1
35 - 39							1	0	1				1
30 - 34	2	1	3										3
25 - 29	1	1	2										2
20 - 24	1	3	4	0	1	1							5
15 - 19	4	2	6	0	1	1	2	2	4				11
10 - 14							1	0	1				1
5 - 9				1	0	1	0	1	1				2
No response	13	6	19	3	0	3	2	0	2	0	1	1	25
Total pupils whose homes are rented.	22	13	35	4	2	6	6	3	9	1	3	4	54 35%
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

C. Monthly rent paid.	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
$125 - $129																	1
120 - 124																	
115 - 119																	
110 - 114																	
105 - 109																	
100 - 104																	
95 - 99																	
90 - 94																	2
85 - 89																	
80 - 84																	
75 - 79																	
70 - 74																	
65 - 69																	
60 - 64																	
55 - 59																	
50 - 54																	
45 - 49							0	1	1							1	1
40 - 44	1	1	2													2	4
35 - 39	1	0	1				2	0	2							3	6
30 - 34							5	3	8							8	13
25 - 29	1	0	1				5	2	7				1	0	1	9	17
20 - 24	2	2	4				2	3	5							9	23
15 - 19	1	1	2				1	0	1	2	0	2	0	1	1	6	26
10 - 14	0	1	1							1	0	1				2	9
5 - 9				3	0	3										3	5
No response	5	7	12				3	1	4	1	3	4	2	4	6	26	77
Total pupils whose homes are rented.	11	12	23	3	0	3	18	10	28	4	3	7	3	5	8	69 36%	184 37%
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

D. Ways in which pupils' homes are Heated.	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Soft coal in furnace.	0	1	1	1	3	4	5	13	18	2	1	3	1	1	2	28
2. Hard coal in furnace.	5	2	7	5	5	10	9	14	23	6	1	7	3	4	7	54
3. Oil in furnace	1	0	1	2	0	2	4	1	5	1	1	2	5	1	6	16
4. Oil stoves in rooms.	4	6	10	3	5	8	9	12	21	11	5	16	1	3	4	59
5. Wood stove in kitchen.	0	3	3	6	4	10	4	2	6	7	5	12	0	1	1	32
6. Wood stoves in rooms.	0	4	4	3	1	4	2	0	2	5	5	10	0	1	1	21
7. Oil burner in kitchen range.	2	1	3	2	0	2	5	12	17	1	0	1	1	6	7	30
8. Coal stove in kitchen.	2	1	3	5	3	8	1	1	2	4	2	6	2	0	2	21
9. Coal stoves in rooms.	1	0	1	2	1	3				5	0	5				9
10 Fire places				1	0	1										1
11. Wood in furnace.																
No response.	1	2	3	1	3	4	0	1	1	3	0	3	1	0	1	12
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

D. Ways in which pupils' homes are Heated.	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Soft coal in furnace.	12	11	23	4	0	4	3	3	6	1	0	1	34
2. Hard coal in furnace.	20	12	32	6	1	7	4	0	4	1	4	5	48
3. Oil in furnace	7	6	13				3	3	6	1	1	2	21
4. Oil stoves in rooms.	12	10	22	9	4	13	5	2	7	2	0	2	44
5. Wood stove in kitchen.	5	6	11	9	3	12	4	5	9	0	1	1	33
6. Wood stoves in rooms.	3	3	6	3	2	5	2	6	8	0	1	1	20
7. Oil burner in kitchen range.	0	16	16	1	3	4	2	1	3	0	1	1	24
8. Coal stove in kitchen.	5	4	9	3	1	4	3	1	4				17
9. Coal stoves in rooms.	12	1	13	1	0	1							14
10 Fire places													
11. Wood in furnace.	5	2	7										7
No response.	0	1	1	0	1	1	0	1	1				3
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

D. Ways in which pupils' homes are Heated.	8th Grade															8th Grade Totals	TOTAL.
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Soft coal in furnace.	12	7	19				4	1	5	0	2	2	5	2	7	33	95
2. Hard coal in furnace.	18	11	29	3	2	5	20	11	31	1	3	4	8	13	21	90	192
3. Oil in furnace	8	4	12				2	1	3	2	1	3	2	1	3	21	58
4. Oil stoves in rooms.	18	10	28	2	7	9	12	3	15	4	3	7	1	1	2	61	164
5. Wood stove in kitchen.	6	4	10	5	2	7	1	0	1	6	7	13	3	4	7	38	103
6. Wood stoves in rooms.	4	1	5	2	3	5				6	4	10	0	2	2	22	63
7. Oil burner in kitchen range.	7	7	14	2	0	2	9	10	19				4	7	11	46	100
8. Coal stove in kitchen.	5	5	10	1	0	1	1	3	4	4	2	6	1	2	3	24	62
9. Coal stoves in rooms.	2	2	4	1	0	1				1	0	1				6	29
10 Fire places	0	1	1													1	2
11. Wood in furnace.	0	2	2										1	0	1	3	10
No response.	2	3	5													5	20
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

E. Knowledge of oil burners of those pupils whose homes are heated this way.	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town E			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Knew the name of the burner.				1	0	1	1	0	1	1	0	1	3	0	3	6
2. Knew it was bought for cash.				1	0	1	1	0	1	1	0	1				3
3. Knew it was bought on installments.							1	0	1							1
4. Knew its price							1	0	1							1
Total pupils having oil burners in their homes.	1	0	1	2	0	2	4	1	5	1	1	2	5	1	6	16 10%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

E. Knowledge of oil burners of those pupils whose homes are heated this way.	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Knew the name of the burner.	2	1	3				0	2	2	1	0	1	6
2. Knew it was bought for cash.							0	1	1	1	0	1	2
3. Knew it was bought on installments.	1	0	1										1
4. Knew its price	1	0	1										1
Total pupils having oil burners in their homes.	7	6	13				3	3	6	1	1	2	21 13%
Total pupils in study	50	44	94	18	11	29	11	14	25	3	6	9	157

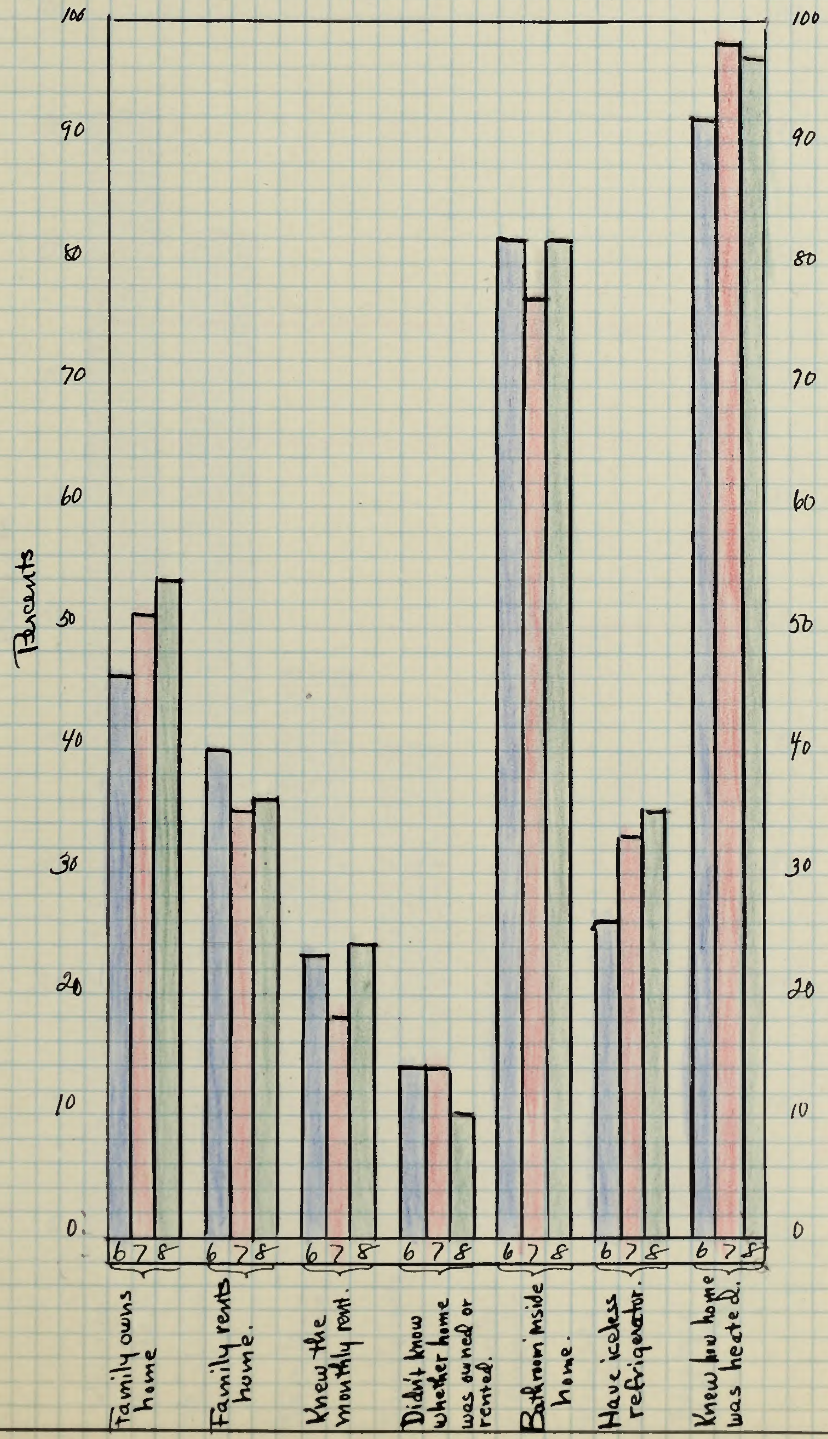
E. Knowledge of oil burners of those pupils whose homes are heated this way.	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Knew the name of the burner.	1	3	4				0	1	1	1	0	1	2	1	3	9	21
2. Knew it was bought for cash.							0	1	1							1	6
3. Knew it was bought on installments.	1	1	2													2	4
4. Knew its price																	2
Total pupils having oil burners in their homes.	8	4	12				2	1	3	2	1	3	2	1	3	21 11%	58 12%
Total pupils in study	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

F. Knowledge of iceless refrigerators of pupils who have them in their homes.	6th Grade															6th Grade Totals
	Town A			Town C			Town D			Town E			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Knew name of refrigerator.	1	1	2	2	2	4	5	5	10	0	1	1	4	0	4	21
2. Knew it was bought for cash.							2	1	3				1	0	1	4
3. Knew it was bought on installments.	0	1	1				3	0	3				1	0	1	5
4. Knew the price.							0	1	1							1
Total pupils having iceless refrigerators in their homes.	2	3	5	3	3	6	6	7	13	3	2	5	8	3	11	40 26%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153

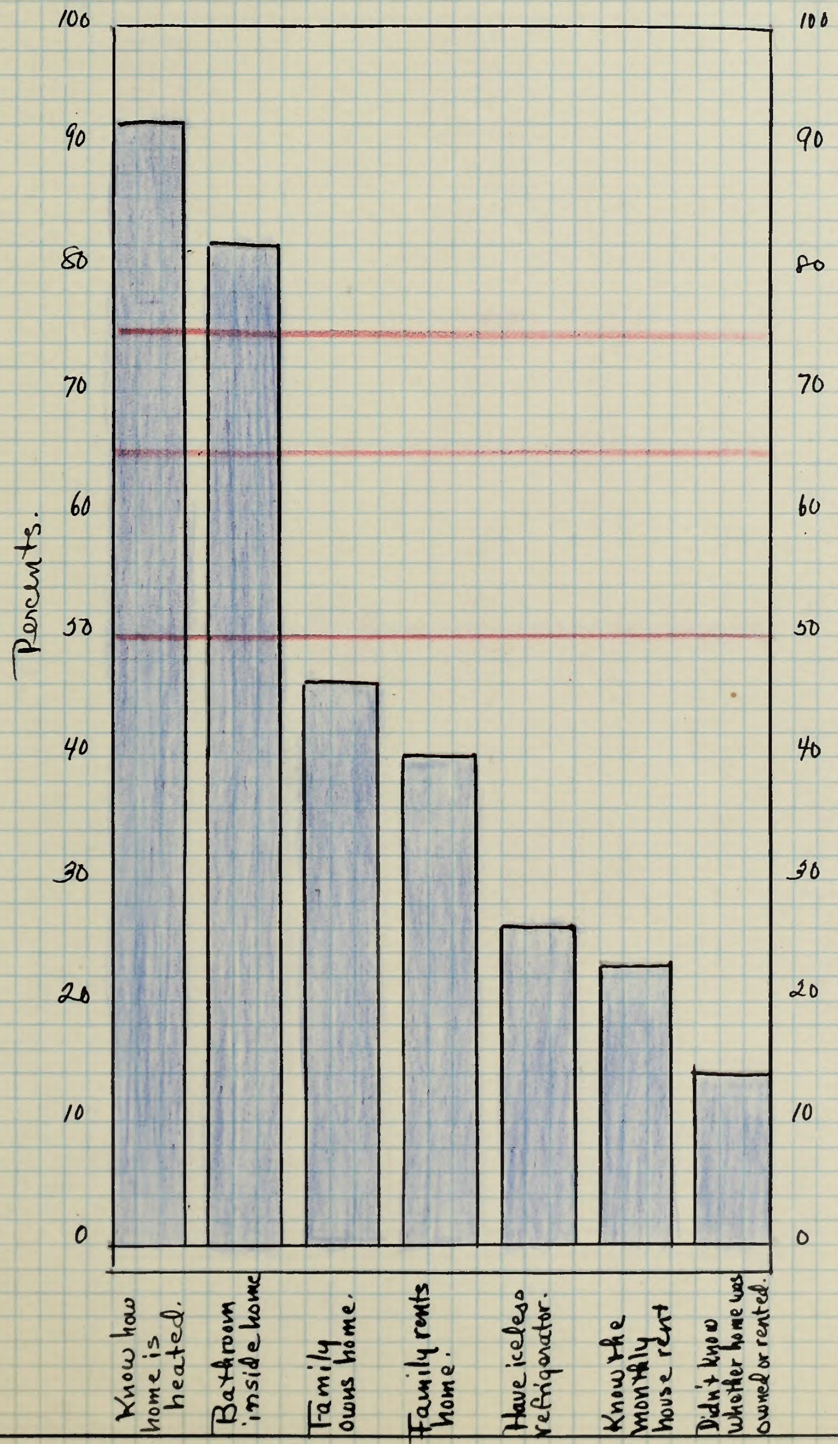
F. Knowledge of iceless refrigerators of pupils who have them in their homes.	7th Grade												7th Grade Totals
	Town A			Town B			Town F			Town G			
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
1. Knew name of refrigerator.	16	11	27	4	0	4	1	1	2	3	2	5	38
2. Knew it was bought for cash.	1	4	5	3	0	3				1	2	3	11
3. Knew it was bought on installments.	7	1	8	1	1	2	1	0	1				11
4. Knew the price.	7	1	8	1	0	1	1	0	1				10
Total pupils having iceless refrigerators in their homes.	22	10	32	7	2	9	2	3	5	3	3	6	52 33%
Total pupils in study.	50	44	94	18	11	29	11	14	25	3	6	9	157

F. Knowledge of iceless refrigerators of pupils who have them in their homes.	8th Grade															8th Grade Totals	TOTAL
	Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Knew name of refrigerator.	13	9	22	2	2	4	11	6	17	2	0	2	6	2	8	53	112
2. Knew it was bought for cash.	3	2	5	1	0	1	5	2	7				2	2	4	17	32
3. Knew it was bought on installments.	8	2	10				4	2	6	1	0	1	2	0	2	19	35
4. Knew the price.	4	0	4	1	0	1	3	2	5				2	0	2	12	23
Total pupils having iceless refrigerators in their homes.	20	10	30	2	3	5	13	7	20	2	1	3	6	2	8	66 35%	158 32%
Total pupils in study.	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

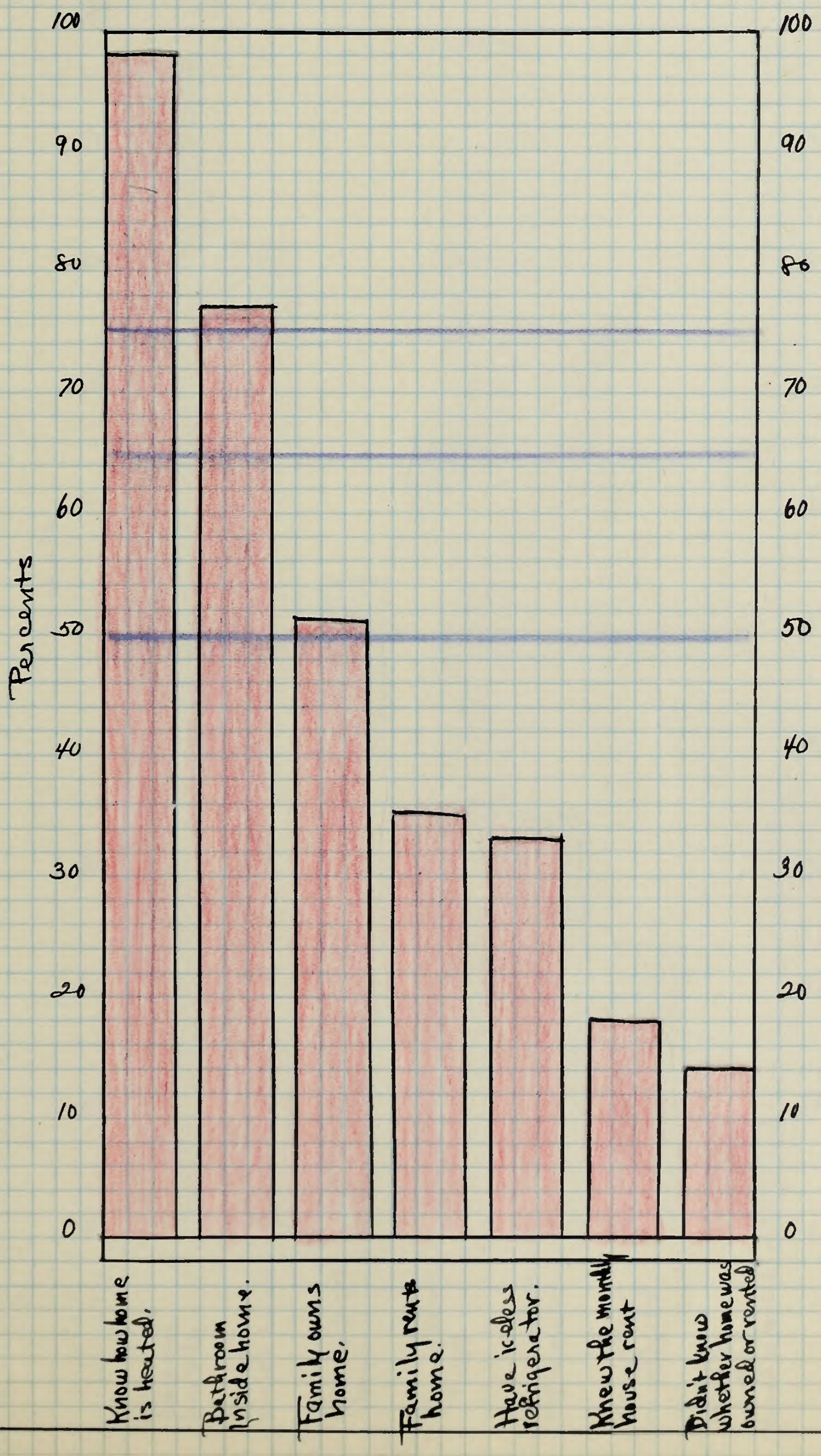
GRAPH 41 - SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING CERTAIN KNOWLEDGE OF THEIR HOMES.



GRAPH 42. SHOWING THE KNOWLEDGE OF THEIR HOMES OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 43- SHOWING THE KNOWLEDGE OF THEIR HOMES OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 44- SHOWING THE KNOWLEDGE OF THEIR HOMES OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

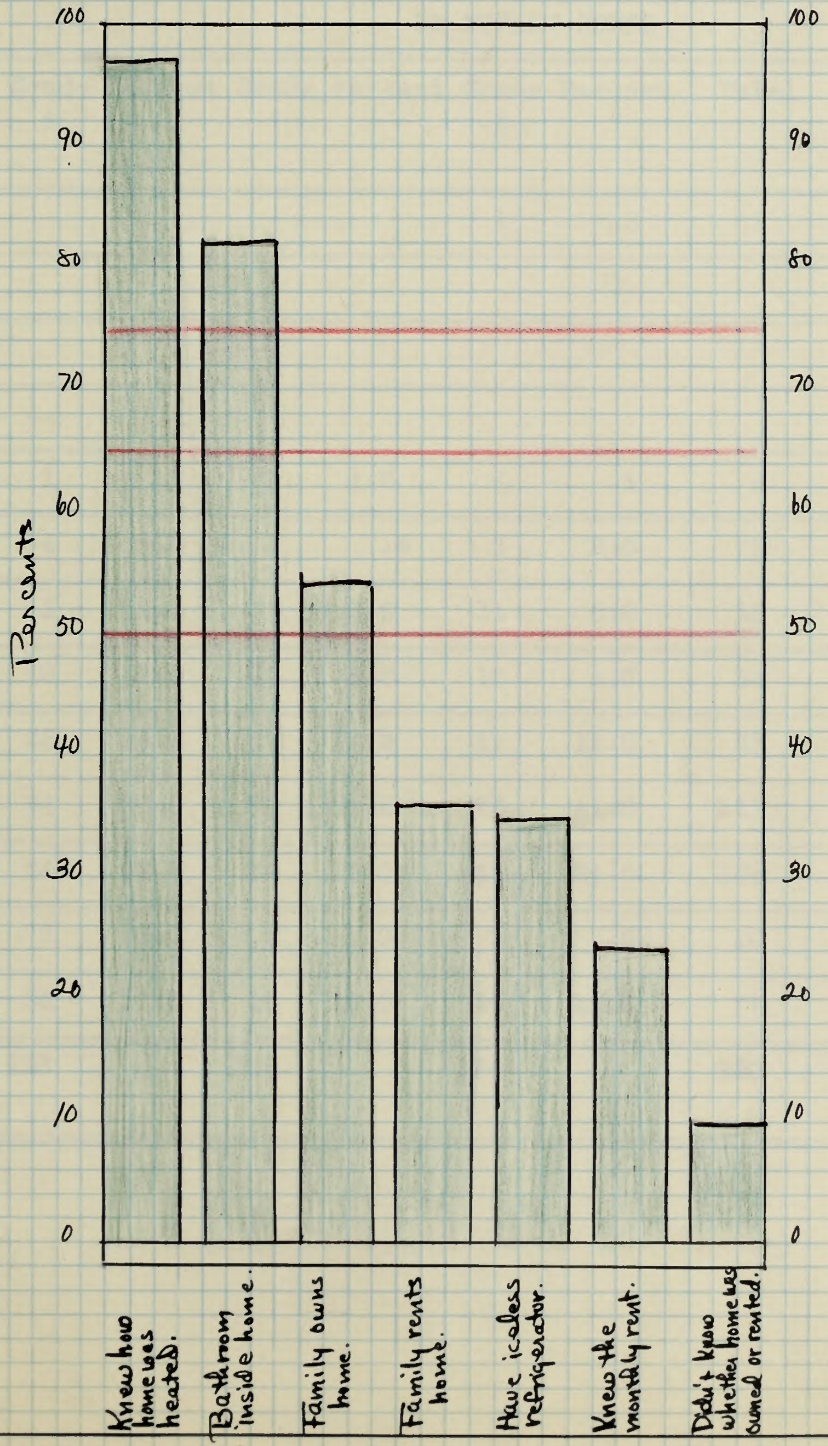


TABLE 46 - SHOWING THE NUMBER OF ROOMS IN PUPILS' HOMES

No. of rooms in pupils' homes	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
24 - 25					1	.5	1	.2
22 - 23								
20 - 21								
18 - 19								
16 - 17	1	.7	2	1.0	1	.5	4	.8
14 - 15	4	3.0	1	.6	3	2.0	8	2.0
12 - 13	2	1.0	5	3.0	11	6.0	18	4.0
10 - 11	10	7.0	12	8.0	12	6.0	34	7.0
8 - 9	25	16.0	27	17.0	31	16.0	83	17.0
6 - 7	54	35.0	79	50.0	78	41.0	211	42.0
4 - 5	34	22.0	24	15.0	46	24.0	104	21.0
2 - 3	7	5.0	2	1.0	1	.5	10	2.0
No response	26	17.0	25	15.0	26	14.0	77	15.0
Total pupils in study	153		157		190		500	

TABLE 47 - SHOWING THE MONTHLY RENT PUPILS REPORT IS PAID FOR THEIR HOMES

	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
$125 -$129			1	.6			1	.2
120 - 124								
115 - 119								
110 - 114								
105 - 109								
100 - 104								
95 - 99								
90 - 94			2	1.0			2	.4
85 - 89								
80 - 84								
75 - 79								
70 - 74								
65 - 69								
60 - 64								
55 - 59								
50 - 54								
45 - 49					1	.5	1	.1
40 - 44	1	.7	1	.6	2	1.0	4	.8
35 - 39	2	1.0	1	.6	3	2.0	6	1.0
30 - 34	2	1.0	3	2.0	8	4.0	13	3.0
25 - 29	6	4.0	2	1.0	9	5.0	17	3.0
20 - 24	9	6.0	5	3.0	9	5.0	23	5.0
15 - 19	9	6.0	11	7.0	6	3.0	26	5.0
10 - 14	6	4.0	1	.6	2	1.0	9	2.0
5 - 9			2	1.0	3	2.0	5	1.0
No response	26	17.0	25	15.0	26	14.0	77	15.0
Total	61	40.0	54	34.0	69	36.0	184	37.0
Total pupils in study	153		157		190		500	

TABLE 48 - SHOWING THE WAYS IN WHICH PUPILS HOMES ARE HEATED

Grade	No. of pupils in grade	No. of different ways mentioned	Heating methods most frequently mentioned	No. of pupils mentioning this method	Percent of total pupils in grade
6	153	10	Oil stoves in rooms	59	39
			Hard coal in furnace	54	35
			Wood stove in kitchen	32	21
7	157	10	Hard coal in furnace	48	31
			Oil stoves in rooms	44	28
			Soft coal in furnace	34	22
8	190	11	Hard coal in furnace	90	47
			Oil stoves in rooms	61	35
			Oil burner in kitchen range	46	24
Total	500	11	Hard coal in furnace	192	38
			Oil stoves in rooms	164	33
			Wood stove in kitchen	103	21

TABLE 49 - SHOWING PUPILS' KNOWLEDGE OF OIL BURNERS IN THEIR HOMES

Knowledge	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
Knew the name of the burner	6	4.0	6	4.0	9	5.0	21	4.0
Knew it was bought for cash	3	2.0	2	1.0	1	.5	6	1.0
Knew it was bought by installment	1	.7	1	.6	2	1.0	4	.8
Knew its price	1	.7	1	.6			2	.4
Total	11	7.0	10	6.0	12	6.0	33	7.0
Total pupils having oil burners in homes	16	10.0	21	13.0	21	11.0	58	12.0
Total pupils in study	153		157		190		500	

TABLE 50 - SHOWING PUPILS' KNOWLEDGE OF ICELESS REFRIGERATORS IN THEIR HOMES

Knowledge	Grade 6	Percent	Grade 7	Percent	Grade 8	Percent	Total	Percent
Knew the name of their refrigerator	6	4.0	6	4.0	9	5.0	21	4.0
Knew it was bought for cash	3	3.0	2	1.0	1	.5	6	1.0
Knew it was bought by installments	1	.7	1	.6	2	1.0	4	.8
Knew the price	1	.7	1	.6			2	.4
Total	11	7.0	10	6.0	12	6.0	33	7.0
Total pupils having iceless refrigerators in homes	16	10.0	21	13.0	21	11.0	58	12.0
Total pupils in study	153		157		190		500	

L. Data on Rooms.-- Table 51, a summary table, gives all the data received through the questionnaire on pupils' experience in decorating their own rooms.

Graph 45 spreads out the data of table 51 in graphic form. The three grades are here compared in certain experiences of room decoration. It is important to note that 41% of grade 6, 34% of grade 7, and 30% of grade 8 have had no experience in room decoration. A large percent of these, no doubt, have no rooms of their own. The experiences mentioned are varied, yet taken as a whole, a greater percent of pupils in each succeeding grade have had some experience.

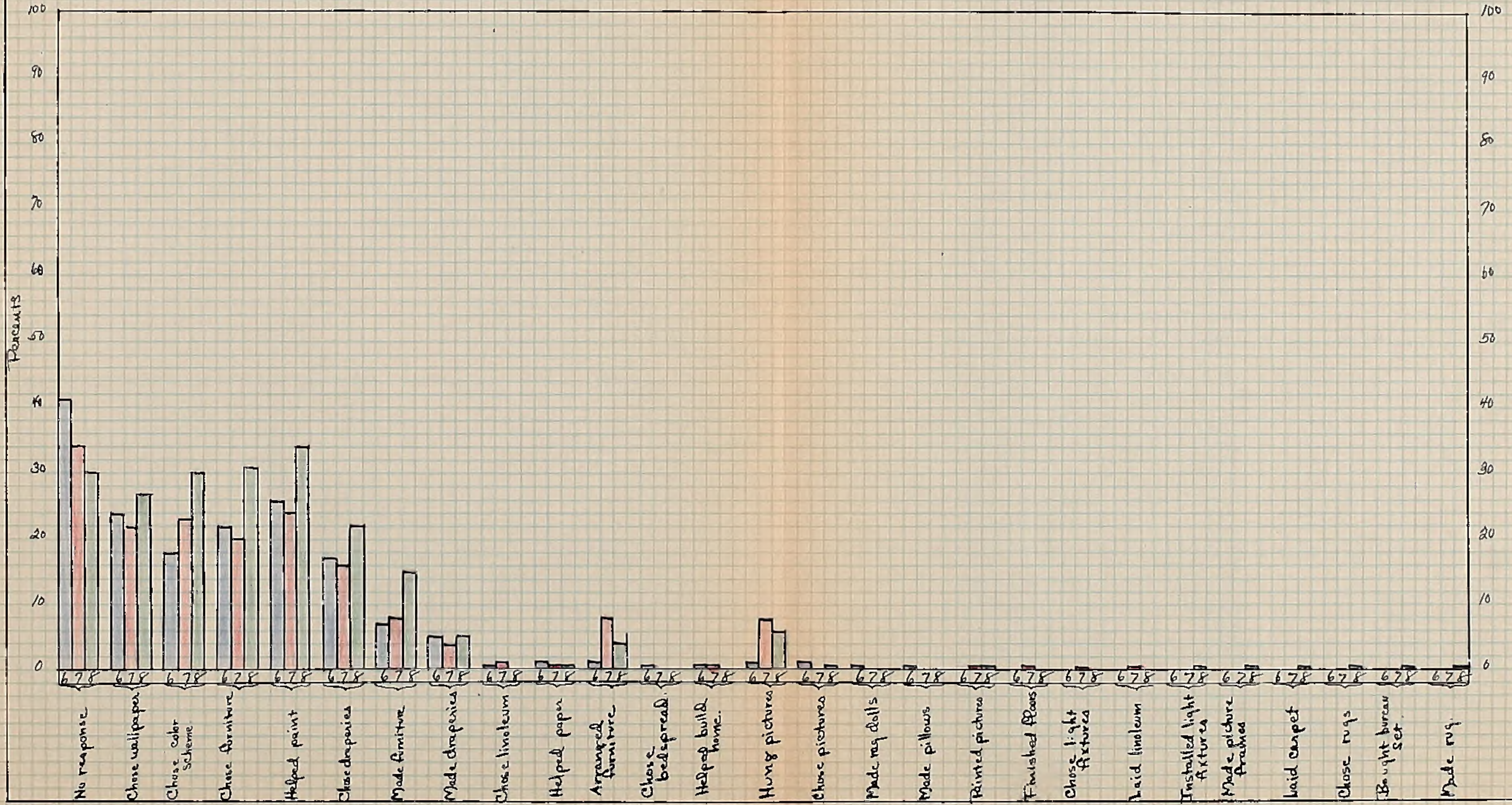
Although none of the bars of graphs 46, 47 and 48 reach a standard, it does not necessarily mean that the topic of room decoration is not a good one for a problem unit. If 41% of grade six have had no experience of this kind, then it follows that 59% have had some experience, and likewise 66% of grade 7, and 70% of grade 8. These percents measure up to at least one of the standards chosen.

TABLE 51.- SHOWING THE

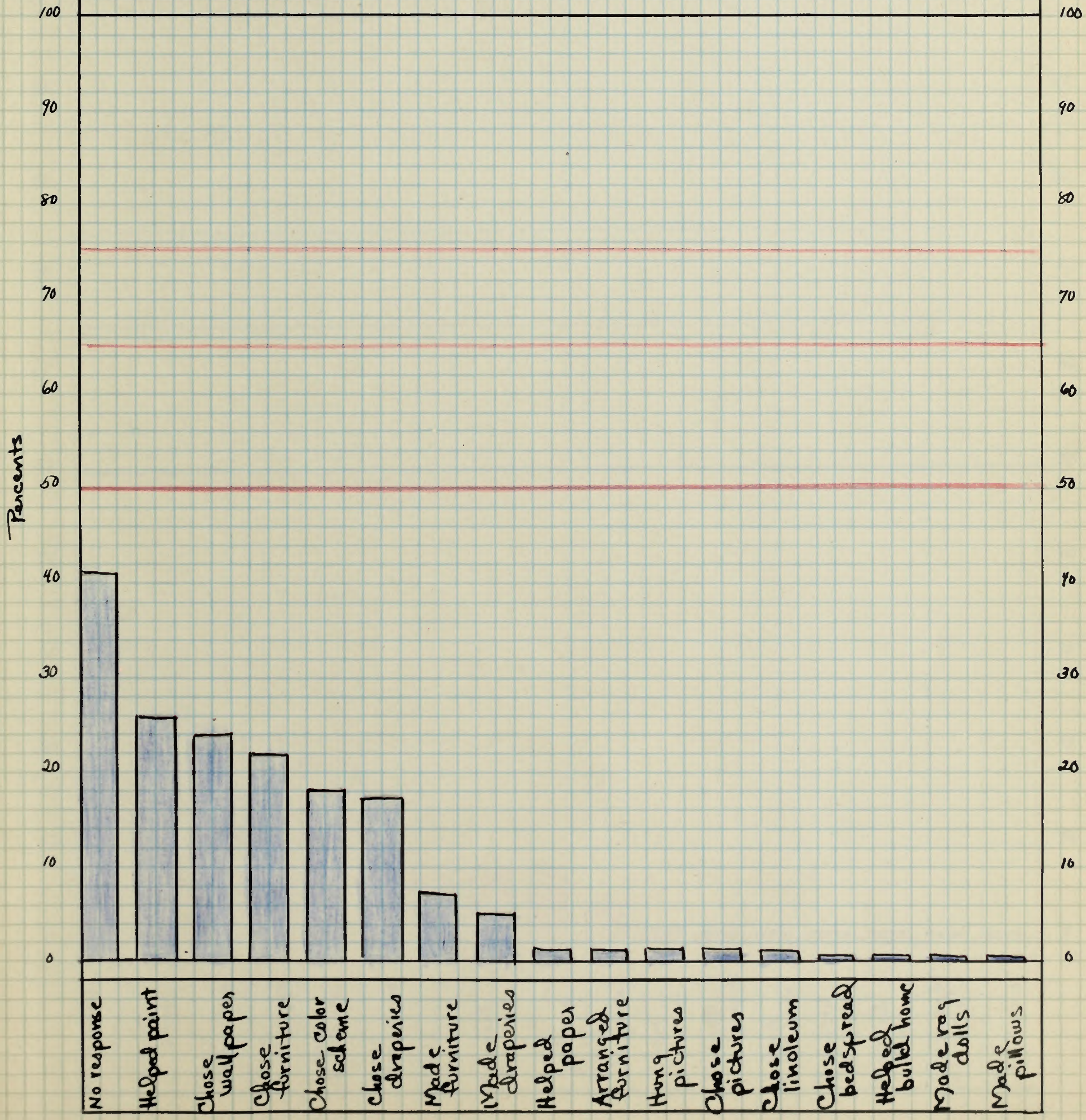
TABLE 51- SHOWING THE EXPERIENCE OF PUPILS IN DECORATING THEIR OWN ROOMS.

Experiences in room decorating.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Chose wallpaper	2	3	5	3	3	6	5	9	14	6	4	10	0	2	2	37 24%	6	16	22	2	2	4	3	3	6	1	2	3	35 22%	7	7	14	2	5	7	7	9	16	2	5	7	3	5	8	52 27%	124 25%
2. Chose color scheme	0	3	3	1	6	7	3	9	12	1	3	4	1	0	1	27 18%	6	18	24	2	1	3	3	3	6	1	2	3	36 23%	11	10	21	1	6	7	7	8	15	3	4	7	4	3	7	57 30%	120 24%
3. Chose furniture	4	1	5	0	3	3	3	13	16	3	4	7	1	2	3	34 22%	9	11	20	0	5	5	3	1	4	1	2	3	32 20%	14	9	23	1	2	3	7	9	16	1	6	7	5	5	10	59 31%	125 25%
4. Helped paint	4	4	8	8	4	12	9	1	10	4	3	7	3	0	3	40 26%	13	10	23	7	2	9	3	1	4	1	1	2	38 24%	19	10	29	5	2	7	12	1	13	2	1	3	8	4	12	64 34%	142 28%
5. Chose draperies	0	4	4	1	4	5	2	8	10	1	4	5	1	1	2	26 17%	4	13	17	0	3	3	1	2	3	1	2	3	26 16%	4	11	15	0	5	5	5	8	13	1	4	5	0	1	1	39 22%	91 18%
6. Made furniture				2	1	3	3	1	4	2	2	4				11 7%	9	0	9	1	0	1	1	1	2				12 8%	19	0	19	1	0	1	4	0	4	1	0	1	4	0	4	29 15%	52 10%
7. Made draperies	0	1	1				1	2	3	0	2	2	0	1	1	7 5%	1	4	5							0	1	1	6 4%	1	2	3	0	2	2	1	1	2	0	2	2				9 5%	22 4%
8. Chose linoleum				0	1	1										1 .65%	0	1	1	1	0	1							2 1%																	3 .6%
9. Helped paper				1	1	2										2 1%	0	1	1										1 .61%	0	1	1													1 .53%	4 .8%
10. Arranged furniture				0	1	1	0	1	1							2 1%	4	3	7	0	1	1	1	2	3	0	1	1	12 8%	2	1	3	0	1	1	0	1	1	0	1	1	1	1	2	8 4%	22 4%
11. Chose bed spread				0	1	1										1 .65%																														1 .2%
12. Helped build home.							1	0	1							1 .65%	1	0	1										1 .61%																	2 .4%
13. Hung pictures							0	1	1	1	0	1				2 1%	8	4	12	1	0	1							13 8%	3	1	4				5	0	5	1	1	2				11 6%	26 5%
14. Chose pictures							0	1	1				0	1	1	2 1%																	0	1	1										1 .53%	3 .6%
15. Made rag dolls							0	1	1							1 .65%																														1 .2%
16. Made pillows							0	1	1							1 .65%																														1 .2%
17. Painted pictures																	1	0	1										1 .61%				1	0	1										1 .53%	2 .4%
18. Finished floors																	1	0	1										1 .61%																	1 .2%
19. Chose light fixtures																	0	1	1										1 .61%																	1 .2%
20. Laid linoleum																				1	0	1							1 .61%																	1 .2%
21. Installed light fixtures																														1	0	1													1 .53%	1 .2%
22. Made picture frames																														1	0	1													1 .53%	1 .2%
23. Laid carpet																														1	0	1													1 .53%	1 .2%
24. Chose rugs																																	1	0	1										1 .53%	1 .2%
25. Bought bureau set																																							0	1	1				1 .53%	1 .2%
26. Made rug.																																										0	1	1	1 .53%	1 .2%
No response	1	7	8	6	3	9	9	13	22	11	3	14	5	5	10	63 41%	16	11	27	8	1	9	6	7	13	2	2	4	53 34%	12	9	21	3	2	5	9	3	12	8	2	10	3	6	9	57 30%	173 35%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

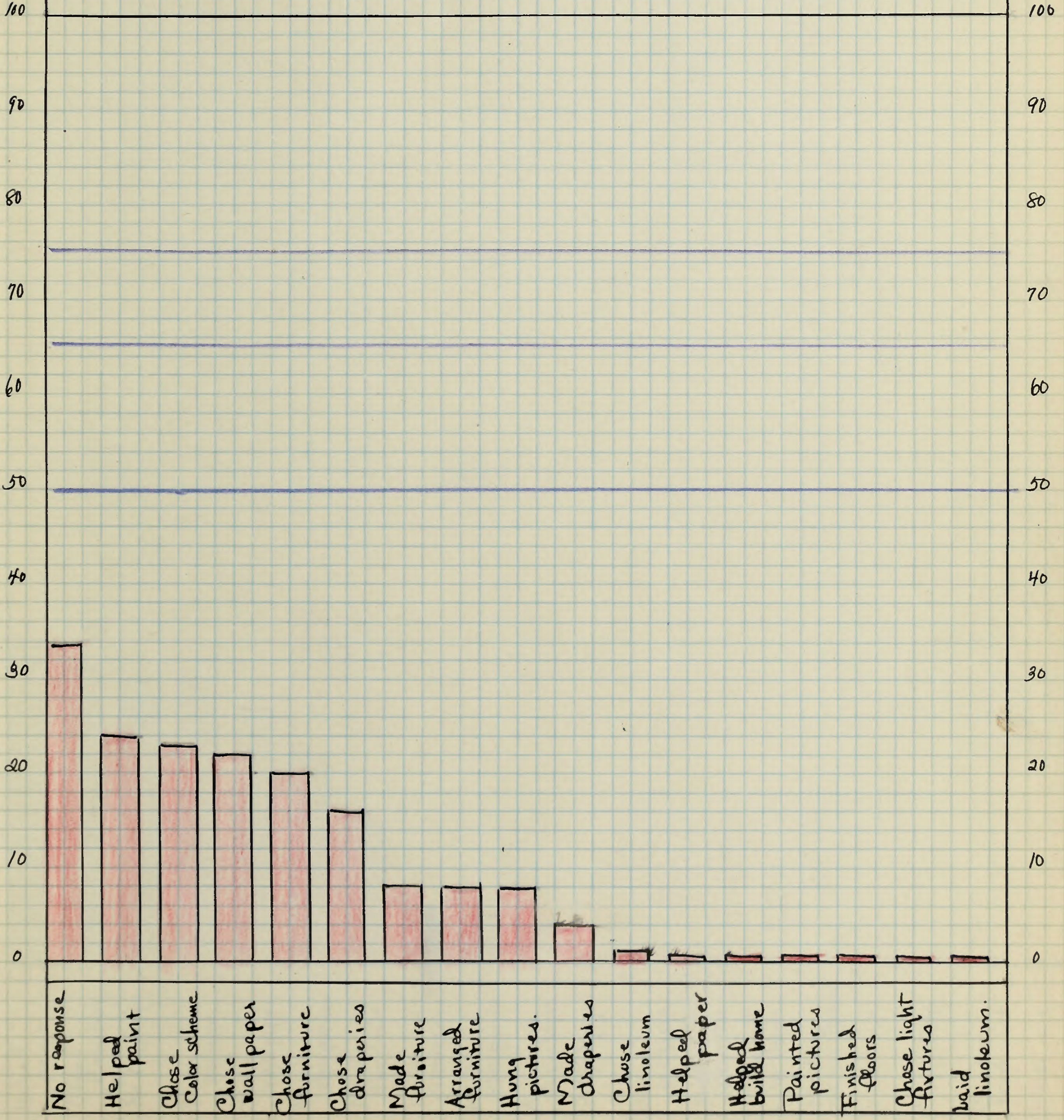
GRAPH 45- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 WHO HAVE HAD CERTAIN EXPERIENCES IN DECORATING THEIR OWN ROOMS.



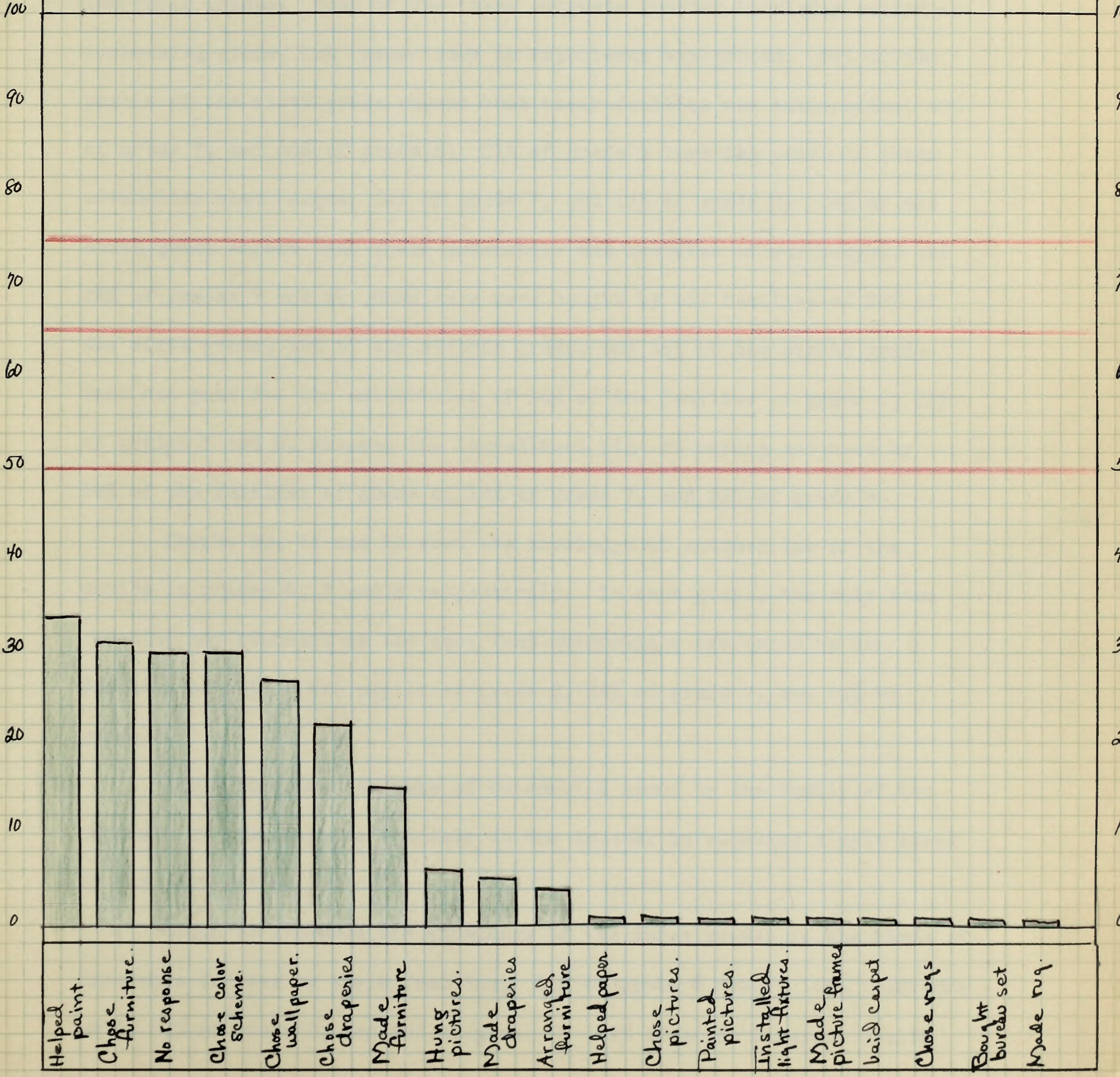
GRAPH 46- SHOWING THE EXPERIENCE IN DECORATING THEIR OWN ROOMS OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 47- SHOWING THE EXPERIENCE IN DECORATING THEIR OWN ROOMS OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 48- SHOWING THE EXPERIENCE IN DECORATING THEIR OWN ROOMS OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



M. Data on Automobiles, Insurance and Business Helps.-- Table 52 gives a summary of all the knowledge and experience secured through the questionnaire on automobiles, insurance and business helps.

Graph 49 compares the knowledge of automobiles of the pupils in the three grades. None of the items suggests greater knowledge gained in increasing grade, but rather show an experience background. 57% of the pupils of the sixth grade report that their families own automobiles, 68% of grade 7, and 66% of grade 8. 11% of grade 6 knew the price of their automobile when bought, 18% of grade 7, and 17% of grade 8. 26% of the sixth grade report that their automobile was new when it was bought, and 28% of grades 7 and 8. Used cars were bought by the families of 28% of the sixth grade, 38% of the seventh grade, and 35% of the eighth grade. Cash was paid for the automobiles of 14% of the families of grade 6, 21% of grades 7 and 8, whereas the installment plan of buying was used by 10% of the families of grade 6, 18% of grade 7, and 22% of grade 8.

Graphs 50, 51 and 52 show the knowledge of automobiles of the pupils in grades 6, 7 and 8 respectively. In each graph, the only item reaching any standard is the fact that automobiles are owned by the families of 57% of the pupils of grade 6, 58% of grade 7, and 66% of grade 8.

Table 53 shows the make of automobile owned by the family of the pupils. It should prove valuable to the teacher in planning a unit based on the automobile.

Graph 53 compares the knowledge of the three grades in the kinds of insurance carried by their families, 52% of grade 6 report life insurance as do 73% of grade 7, and 72% of grade 8. 13% of grade 6 report health

insurance, 10% of grade 7, and 13% of grade 8. Accident insurance is reported by 31% of the sixth grade, 32% of the seventh grade, and 39% of the eighth. 34% of grade 6 report fire insurance carried by their families, 36% of grade 7, and 51% of grade 8. Automobile insurance is reported to be carried by 29% of the families of the sixth grade pupils, 44% of the seventh grade, and 47% of the eighth grade. 35% of grade 6 gave no response of any kind to this section of the questionnaire as was true of 20% of grade 7, and 19% of grade 8. The results of this graph should not be taken as an indication of the insurance actually carried by the pupils' parents but rather as an indication of the children's knowledge of the insurance carried.

Graphs 54 and 55, showing the knowledge of insurance for grades 6 and 7 show only one item reaching a standard. In grade 6, 52% know that life insurance is carried by their family, and in grade 7, 73%.

Graph 56, showing the knowledge of insurance is the eighth grade shows two items reaching a standard. Here, 72% report life insurance, and 51% report fire insurance to be carried by their families.

Graph 57 shows the percents of pupils in grades 6, 7 and 8 who have a knowledge of or experience with certain business helps. Two of the items show definite increase in the percent for each grade. 33% of the pupils in grade 6 have sent a money order, 46% in grade 7, and 57% in grade 8. In the sixth grade, 27% have used a time table, in the seventh grade, 38%, and in the eighth grade, 39%. Apparently these two experiences increase with increasing grade. Reporting that they have used a dial telephone are 37% of grade 6, 26% of grade 7, and 39% of grade 8. In the sixth grade, 41% have sent a package by parcel post, 39% in the seventh

grade, and 53% in the eighth grade. Knowing how to read an electric meter are 12% of grade 6, 51% of grade 7, and 19% of grade 8. This high percent in the seventh grade is caused by the results of one school where this has been taught. However, the fact that only 3% of the sixth grade read the electric meter regularly, 6% of the seventh, and 2% of the eighth makes one question the value of teaching this topic. 43% of the sixth grade have ordered from a store by telephone, 42% of the seventh grade, and 59% of the eighth. The experience of ordering from a store by a catalog has been had by 44% of grade 6, 38% of grade 7, and 43% of grade 8.

Graph 58 shows that none of the business experiences checked in the questionnaire reach a standard in grade 6.

In graph 58, it is seen that one item reaches a standard, 51% of grade 7 being able to read the electric meter. This is a result of the teaching of this in one school used in the study, so is not representative of the entire group.

Graph 60 shows the knowledge and experience with business helps of the pupils in grade 8. Three items reach a standard here, 59% having ordered from a store by telephone, 57% having sent a money order, and 53% having sent a package by parcel post.

TABLE 5[illegible] SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS

TABLE 52 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS WITH AUTOMOBILES, INSURANCE AND BUSINESS HELPS.

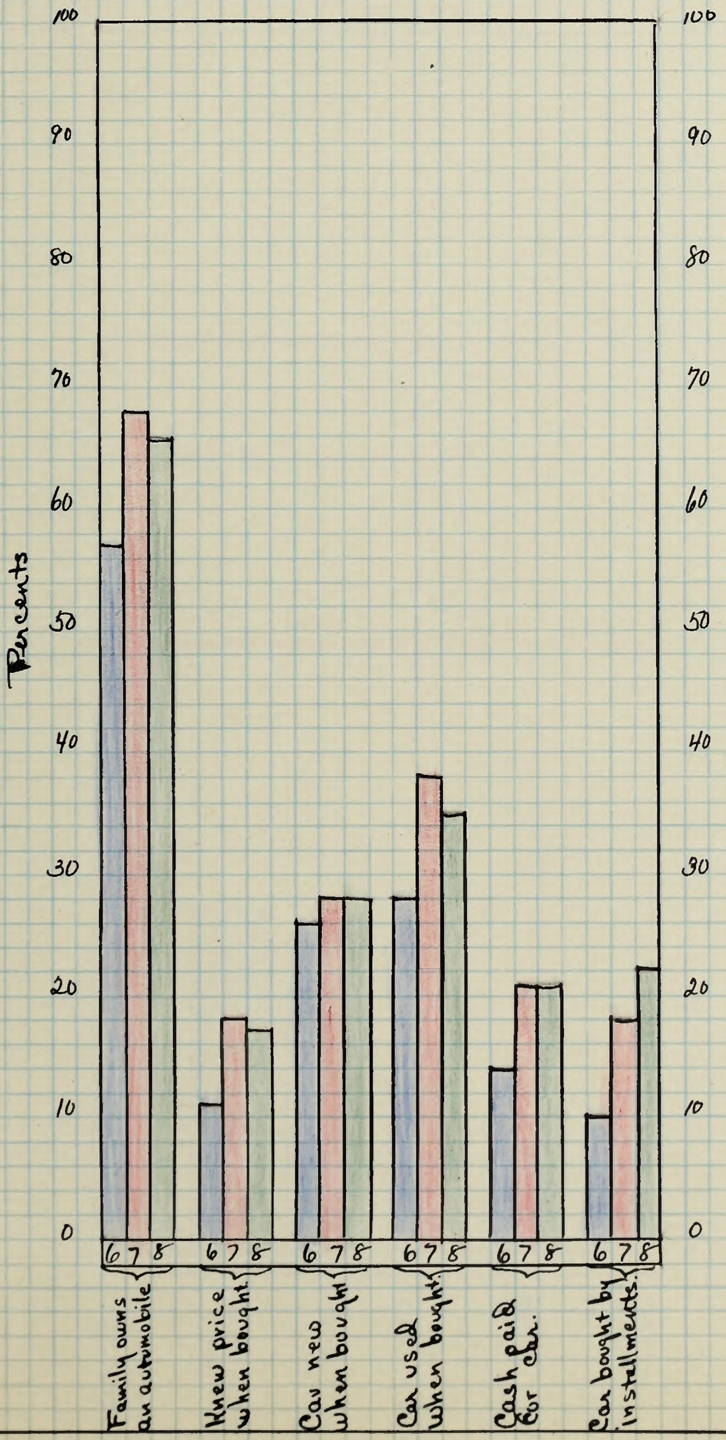
A. Knowledge of automobiles	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Family owns an automobile.	5	6	11	4	10	14	12	17	29	13	5	18	7	8	15	87 57%	34	27	61	12	8	20	7	10	17	3	5	8	106 68%	32	21	53	7	7	14	13	8	21	11	8	19	11	8	19	126 66%	319 64%
2. Knew price when bought.	1	0	1	2	1	3	4	5	9	3	1	4				17 11%	10	4	14	5	3	8	3	0	3	3	1	4	29 18%	17	0	17	3	1	4	5	0	5	1	2	3	3	0	3	32 17%	78 16%
3. Car new when bought.	1	4	5	2	7	9	6	7	13	5	0	5	6	2	8	40 26%	11	9	20	8	1	9	2	6	8	3	4	7	44 28%	13	7	20	2	4	6	5	6	11	2	2	4	8	5	13	54 28%	138 28%
4. Car used when bought.	3	1	4	2	3	5	6	9	15	7	5	12	1	6	7	43 28%	22	19	41	3	6	9	5	3	8	0	2	2	60 38%	19	14	33	5	3	8	5	2	7	7	4	11	4	3	7	66 35%	169 34%
5. Cash paid for car.	0	1	1	3	1	4	4	1	5	6	1	7	2	3	5	22 14%	5	10	15	4	3	7	5	2	7	4	0	4	33 21%	7	5	12	4	1	5	5	4	9	5	1	6	2	5	7	39 21%	94 19%
6. Car bought by installments	3	1	4	0	1	1	3	6	9				0	1	1	15 10%	10	6	16	5	1	6	2	1	3	2	2	4	29 18%	13	6	19	2	2	4	5	1	6	1	2	3	7	3	10	42 22%	86 17%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

B. Make of automobile owned by family.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Plymouth	1	0	1				2	1	3	0	2	2	0	1	1	7	2	3	5	2	1	3	2	1	3				11	6	3	9				2	0	2	1	2	3	1	1	2	16	34
2 Chevrolet	2	3	5	0	3	3	1	5	6	4	0	4	2	1	3	21	10	2	12	3	1	4	1	3	4	1	2	3	23	7	6	13	3	2	5	1	3	4	5	4	9	4	1	5	36	80
3 Ford	1	1	2	0	3	3	1	3	4	4	2	6	3	3	6	21	6	6	12	3	1	4	2	4	6	0	1	1	23	8	4	12	2	1	3	2	0	2	1	2	3	3	4	7	27	71
4 Pontiac	1	0	1	1	0	1	0	1	1							3	4	2	6										6	3	1	4				1	0	1							5	14
5 Oldsmobile	0	1	1	0	1	1	2	1	3	1	0	1				6	2	1	3	1	0	1	0	1	1	2	1	3	8	3	2	5										0	1	1	6	20
6 Buick				4	2	6	1	0	1	1	1	2	1	1	2	11	1	5	6	0	1	1	0	1	1	1	1	2	10	1	1	2							1	0	1	1	1	2	5	26
7 Dodge				1	1	2										2	2	0	2	2	0	2							4	2	0	2	0	1	1	1	0	1	1	2	3				7	13
8 Terraplane							1	0	1				1	0	1	2	0	1	1	1	0	1							2	0	2	2	1	1	2										4	8
9 Essex							1	1	2				0	1	1	3	1	1	2										2							0	1	1							1	6
10 Packard							1	0	1							1														0	1	1				0	1	1	1	0	1	1	1	2	5	6
11 Oakland							1	1	2							2																														2
12 Studebaker							0	2	2				0	1	1	3	2	2	4										4	4	1	5													5	12
13 Graham							0	1	1							1							0	1	1				1																	2
14 Nash										1	0	1	0	1	1	2	0	1	1	2	0	2							3	1	1	2				1	1	2							4	9
15 Lincoln													1	0	1	1																														1
16 Pierce Arrow													1	0	1	1	1	1	2										2																	3
17 Auburn																	1	0	1										1																	1
18 Hudson																	1	1	2	0	1	1							3	1	0	1	0	1	1										2	5
19 De Soto																	1	0	1							0	1	1	2							1	0	1							1	3
20 Hupmobile																	0	1	1										1																	1
21 Chryster																	0	1	1	0	1	1							2	1	0	1										2	1	3	4	6
22 Peerless																	0	1	1										1																	1
23 Cadillac																																	0	1	1	2	0	2							3	3
24 Lafayette																																	0	1	1										1	1
25 La Salle																																				1	0	1							1	1
26 Franklin																																										1	1	2	2	2
27 Willys																																										0	1	1	1	1
No response	0	1	1				1	1	2	5	0	5				8	1	0	1	0	2	2	1	0	1				4	4	0	4	1	0	1	0	2	2	1	0	1				8	20
Total pupils having an automobile at home	5	6	11	4	10	14	12	17	29	13	5	18	7	8	15	87 57%	34	27	61	12	8	20	7	10	17	3	5	8	106 68%	32	21	53	7	7	14	13	8	21	11	8	19	11	8	19	126 66%	319 64%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

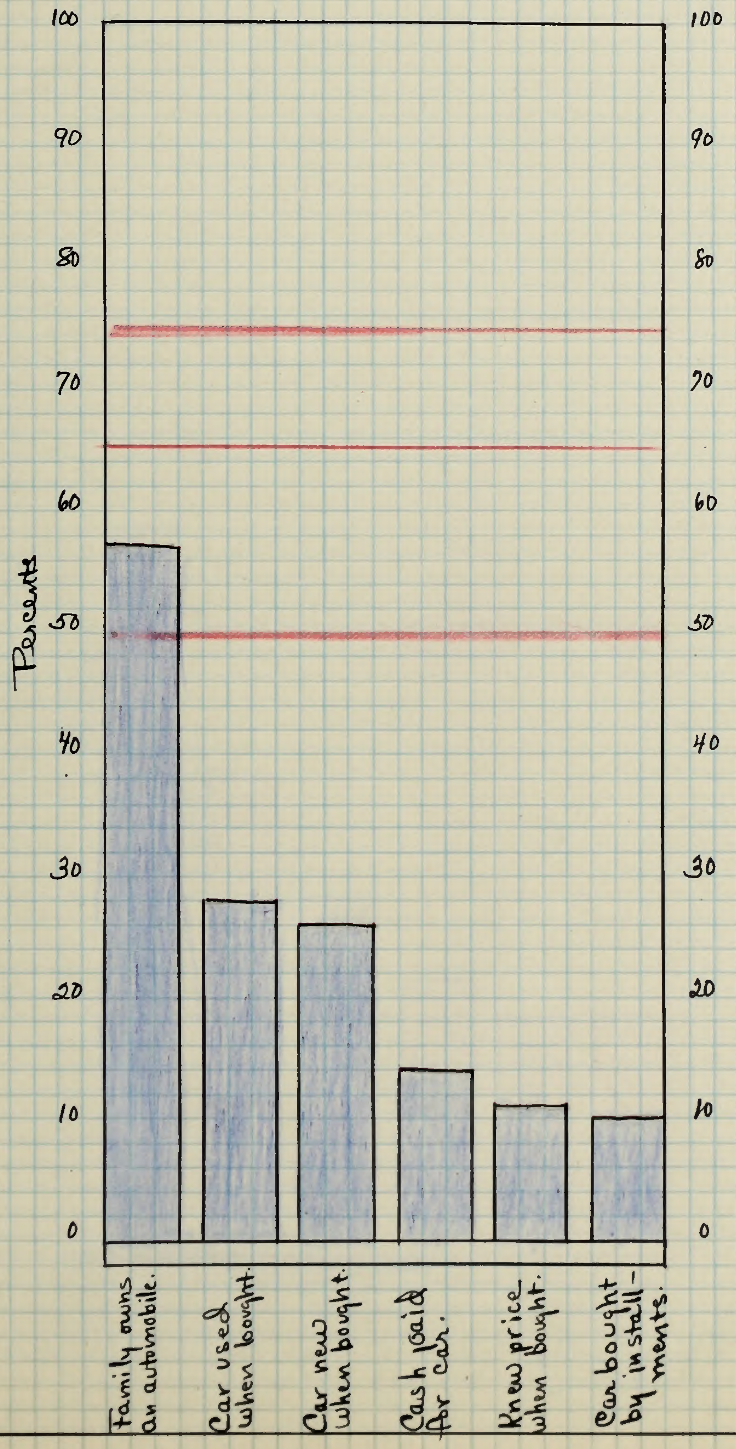
C. Kinds of insurance pupils report are held by family.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Life	2	10	12	10	5	15	18	14	32	13	2	15	3	4	7	81 52%	33	36	69	13	9	22	8	8	16	3	5	8	115 73%	35	24	59	8	7	15	17	12	29	8	5	13	10	10	20	136 72%	332 66%
2. Health	0	1	1	2	2	4	5	3	8	4	2	6	0	1	1	20 13%	5	2	7	2	1	3	2	2	4	0	2	2	16 10%	6	4	10	1	1	2	6	1	7	0	2	2	2	1	3	24 13%	60 12%
3. Accident	0	4	4	4	5	9	12	9	21	8	2	10	1	2	3	47 31%	15	13	28	7	3	10	4	3	7	2	3	5	50 32%	18	11	29	4	7	11	10	5	15	5	4	9	5	6	11	75 39%	172 34%
4. Fire	3	3	6	5	2	7	15	11	25	6	2	8	2	4	6	52 34%	15	16	31	8	2	10	4	6	10	3	2	5	56 36%	22	14	36	3	8	11	14	11	25	5	4	9	8	7	15	96 51%	204 41%
5. Automobile	4	3	7	3	3	6	8	9	17	7	1	8	2	4	6	44 29%	21	14	35	11	6	17	6	5	11	3	3	6	69 44%	25	11	36	5	5	10	10	5	15	7	7	14	8	7	15	90 47%	203 41%
No response	3	2	5	3	5	8	2	13	15	6	8	14	6	6	12	54 35%	14	7	21	3	1	4	2	4	6				31 20%	5	7	12	1	1	2	8	4	12	4	2	6	1	3	4	36 19%	121 24%
Total pupils in study.	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

D. Experiences with business helps.	6th Grade															6th Grade Totals	7th Grade												7th Grade Totals	8th Grade															8th Grade Totals	TOTAL
	Town A			Town C			Town D			Town F			Town G				Town A			Town B			Town F			Town G				Town A			Town B			Town E			Town F			Town G				
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total		
1. Have used a dial telephone	3	2	5	12	11	23	5	7	12	9	2	11	5	1	6	57 37%	9	8	17	6	3	9	3	7	10	2	3	5	41 26%	12	13	25	0	5	5	17	10	27	3	4	7	6	4	10	74 39%	172 34%
2. Have sent a money order.	4	3	7	3	3	6	8	12	20	8	6	14	1	2	3	50 33%	24	20	44	10	3	13	8	3	11	2	3	5	73 46%	29	20	49	7	8	15	9	5	14	8	4	12	8	12	20	110 57%	233 47%
3. Have sent a package by parcel post.	3	3	6	10	4	14	10	14	24	7	8	15	1	2	3	62 41%	17	18	35	8	1	9	6	4	10	2	5	7	61 39%	28	13	41	5	6	11	13	8	21	6	4	10	9	9	18	101 53%	224 45%
4. Have used a timetable.	1	1	2	7	2	9	7	8	15	10	3	13	0	2	2	41 27%	18	13	31	7	5	12	5	3	8	3	5	8	59 38%	19	13	32	1	5	6	9	1	10	4	5	9	10	8	18	75 39%	175 35%
5. Know how to read an electric meter.	1	2	3	1	0	1	3	3	6	6	2	8	0	1	1	19 12%	42	33	75	0	1	1	3	1	4				80 51%	6	3	9	1	0	1	14	4	18	0	3	3	4	1	5	36 19%	135 27%
6. Have ordered from a store by telephone.	3	3	6	6	4	10	6	15	21	12	6	18	6	5	11	66 43%	26	17	43	10	1	11	4	5	9	1	3	4	67 42%	20	21	41	1	6	7	20	12	32	7	7	14	11	8	19	113 59%	246 49%
7. Have ordered from a store by catalog	4	5	9	6	4	10	14	9	23	11	7	18	3	4	7	67 44%	15	15	30	9	7	16	6	4	10	1	2	3	59 38%	19	15	34	4	4	8	12	2	14	7	3	10	9	6	15	81 43%	207 41%
8 Read the electric meter regularly							1	1	2	1	1	2				4 3%	5	4	9				1	0	1				10 6%	1	0	1	1	0	1	1	0	1	0	1	1				4 2%	18 4%
Total pupils in study	8	13	21	15	13	28	23	30	53	20	11	31	10	10	20	153	50	44	94	18	11	29	11	14	25	3	6	9	157	42	32	74	9	10	19	28	17	45	14	10	24	13	15	28	190	500

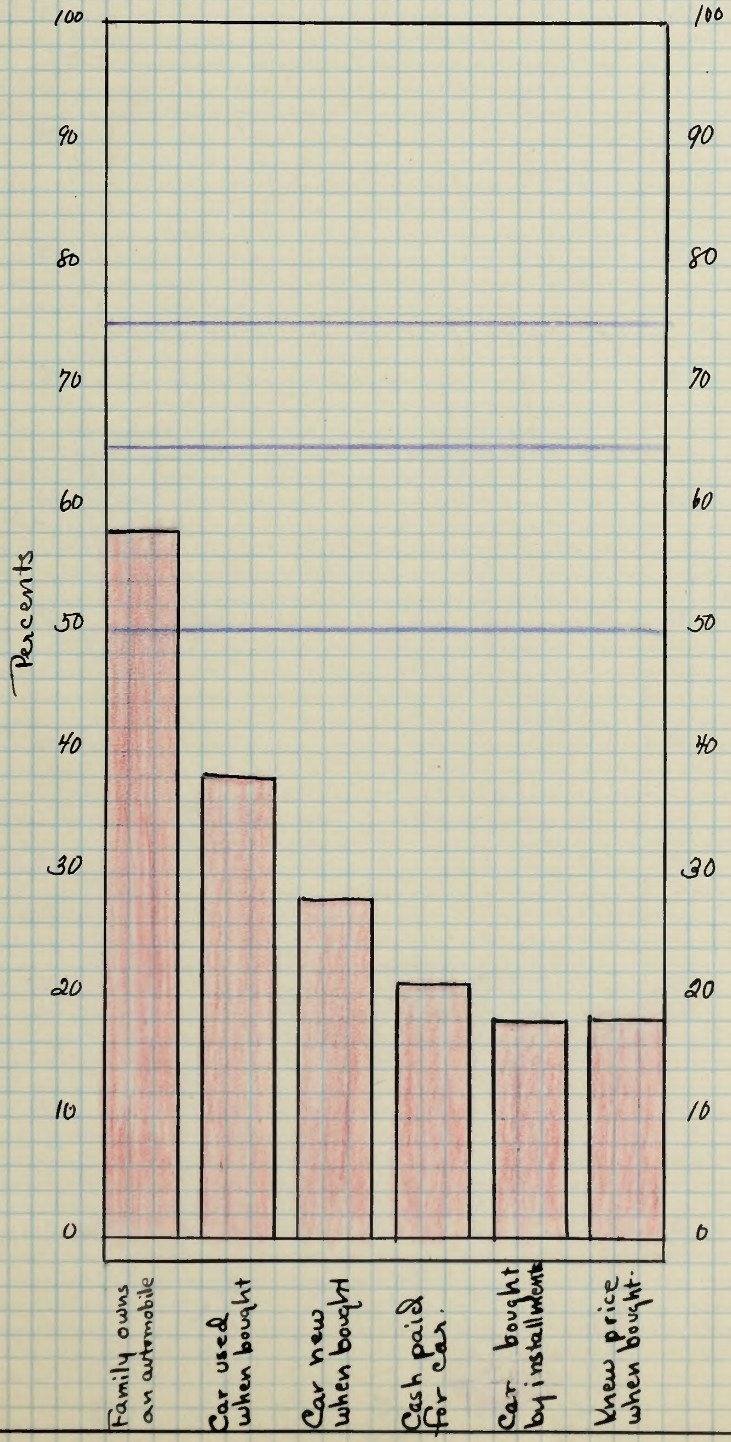
GRAPH 49- SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING CERTAIN KNOWLEDGE OF AUTOMOBILES.



GRAPH 50- SHOWING THE KNOWLEDGE OF AUTOMOBILES OF PUPILS OF GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 51 – SHOWING THE KNOWLEDGE OF AUTOMOBILES OF PUPILS OF GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 52- SHOWING THE KNOWLEDGE OF AUTOMOBILES OF PUPILS OF GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM SOLVING UNIT IN ARITHMETIC.

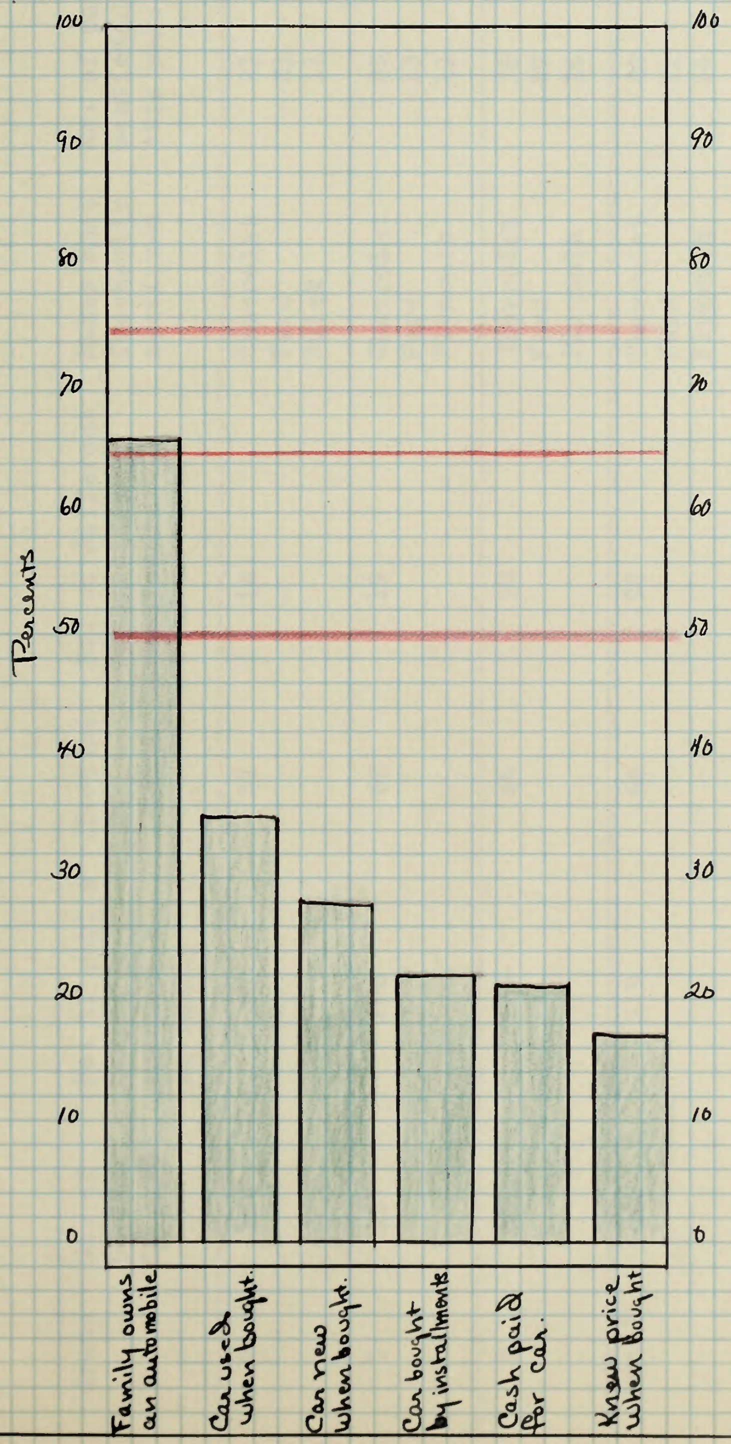
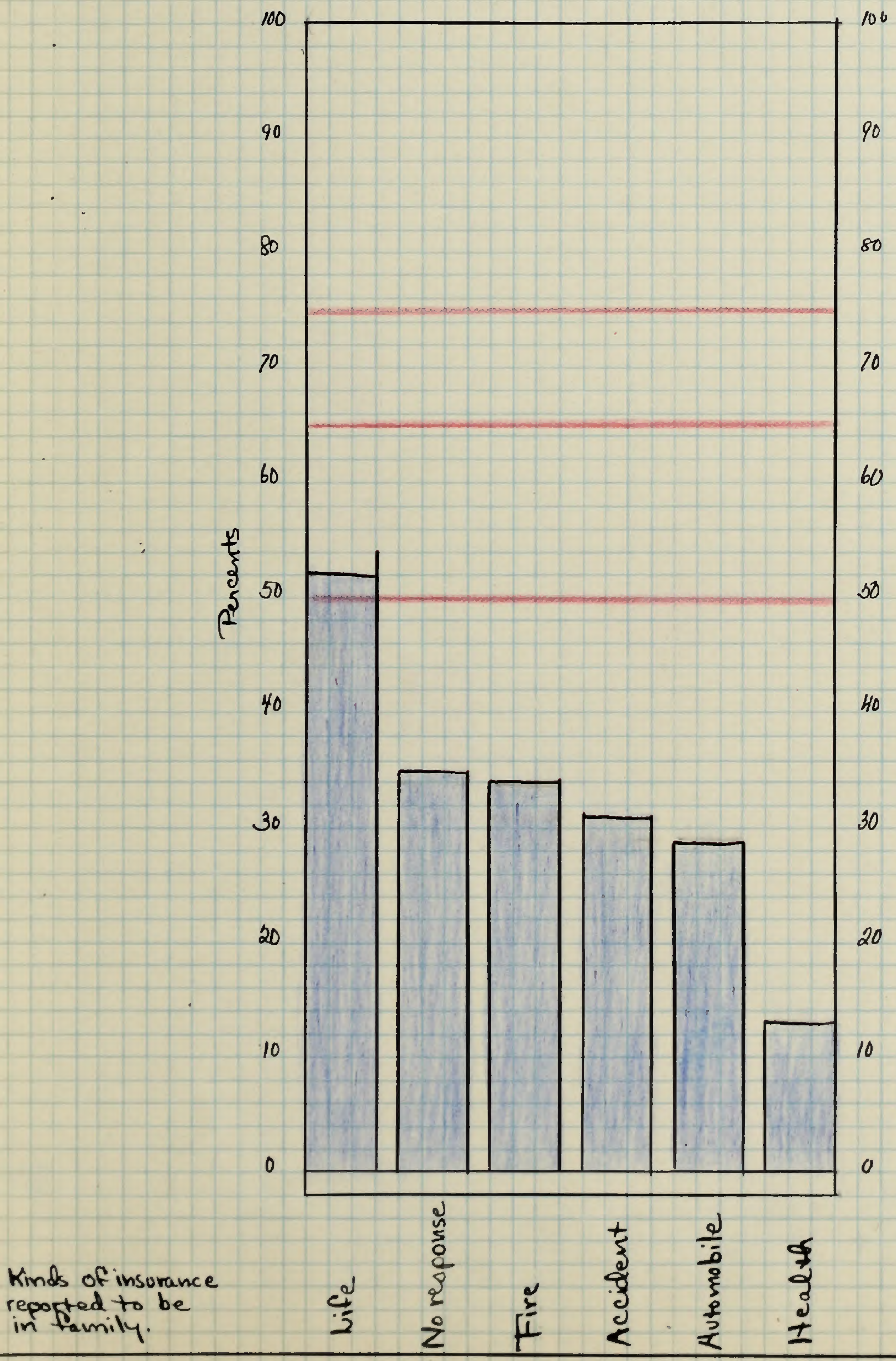


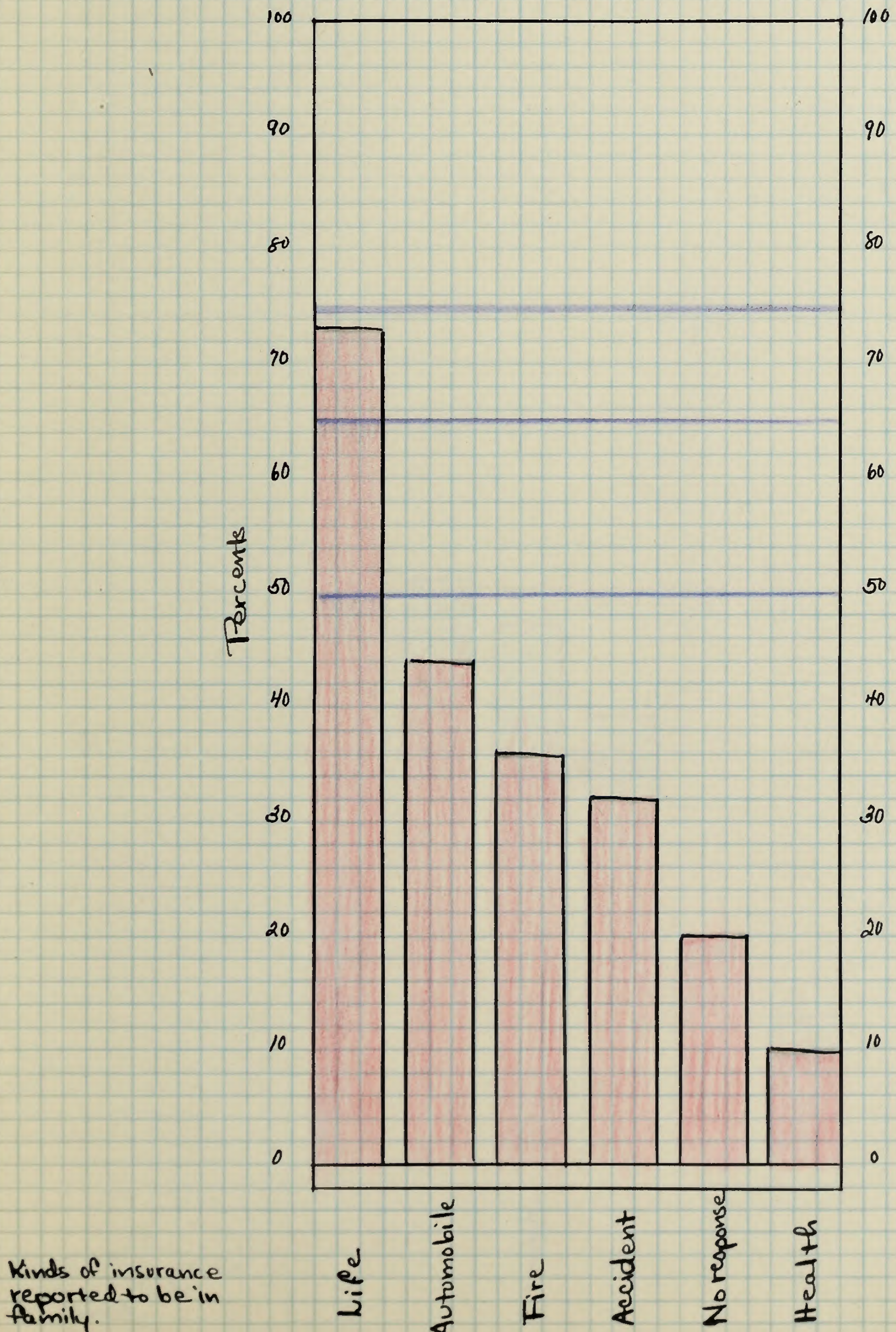
TABLE 53 - SHOWING THE MAKE OF AUTOMOBILE OWNED BY FAMILY OF PUPILS

Grade	No. of pupils in grade	No. of pupils having an automobile in family	Percent of total	No. of different automobiles mentioned	Makes most frequently mentioned	No. of pupils mentioned this make	Percent of those having automobiles
6	153	87	57	16	Chevrolet	21	24
					Ford	21	24
					Buick	11	13
7	157	106	68	19	Chevrolet	23	22
					Ford	23	22
					Plymouth	11	10
8	190	126	66	20	Chevrolet	36	29
					Ford	27	21
					Plymouth	16	13
Total	500	319	64	27	Chevrolet	80	25
					Ford	71	22
					Plymouth	34	11

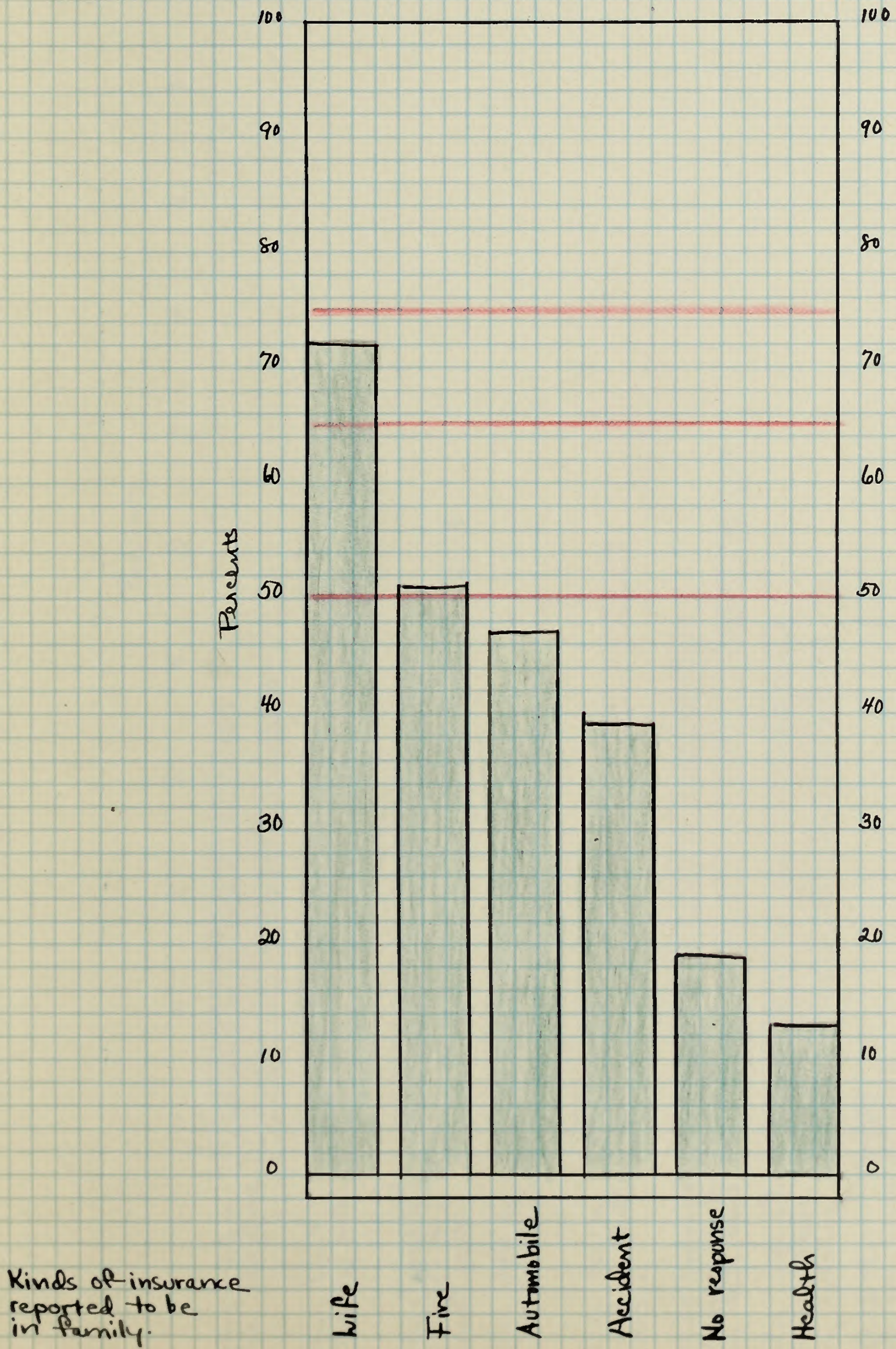
GRAPH 54 - SHOWING THE KNOWLEDGE OF INSURANCE OF PUPILS IN GRADE 6 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 55 - SHOWING THE KNOWLEDGE OF INSURANCE OF PUPILS IN GRADE 7 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

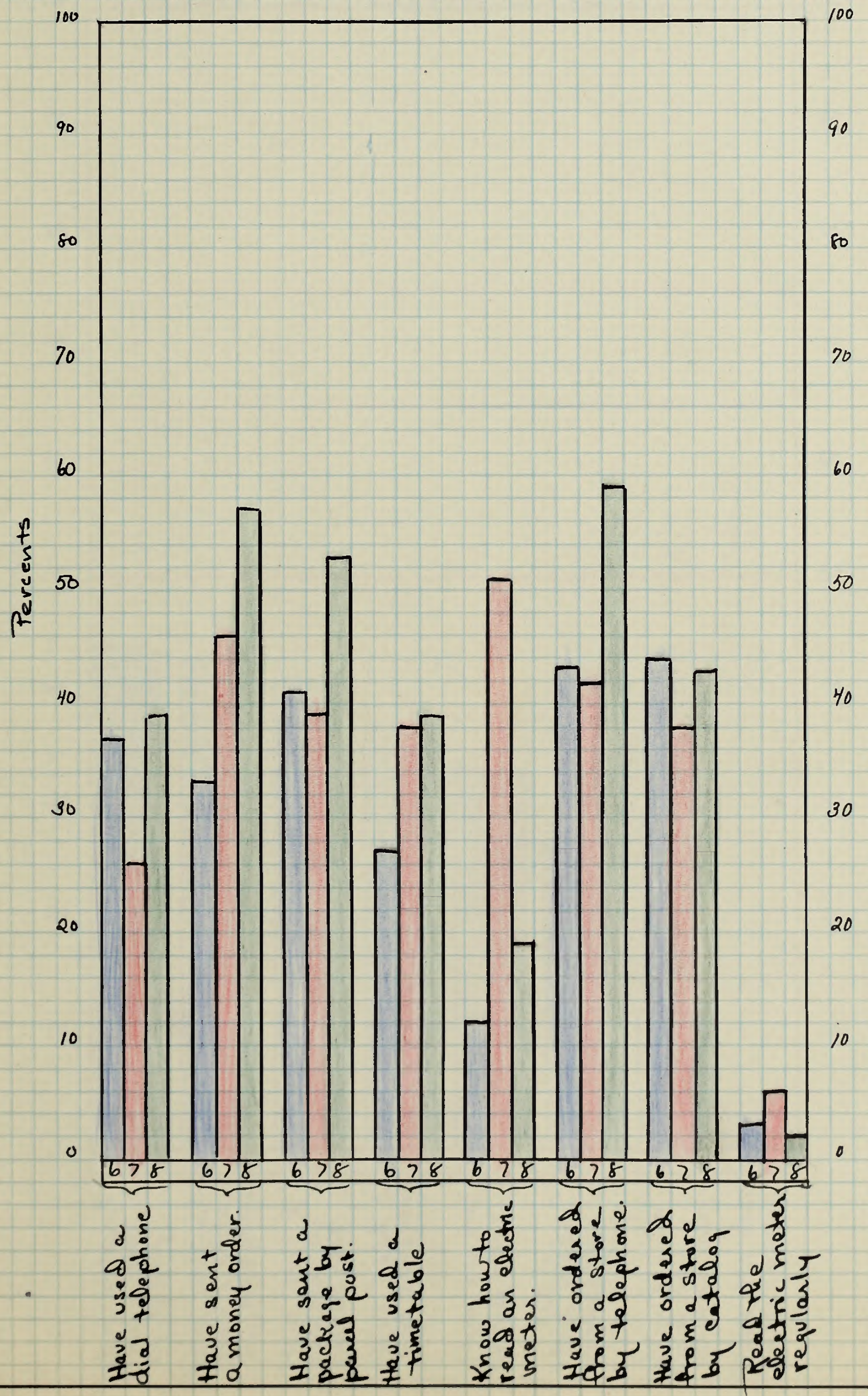


GRAPH 56 - SHOWING THE KNOWLEDGE OF INSURANCE OF PUPILS IN GRADE 8 WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.

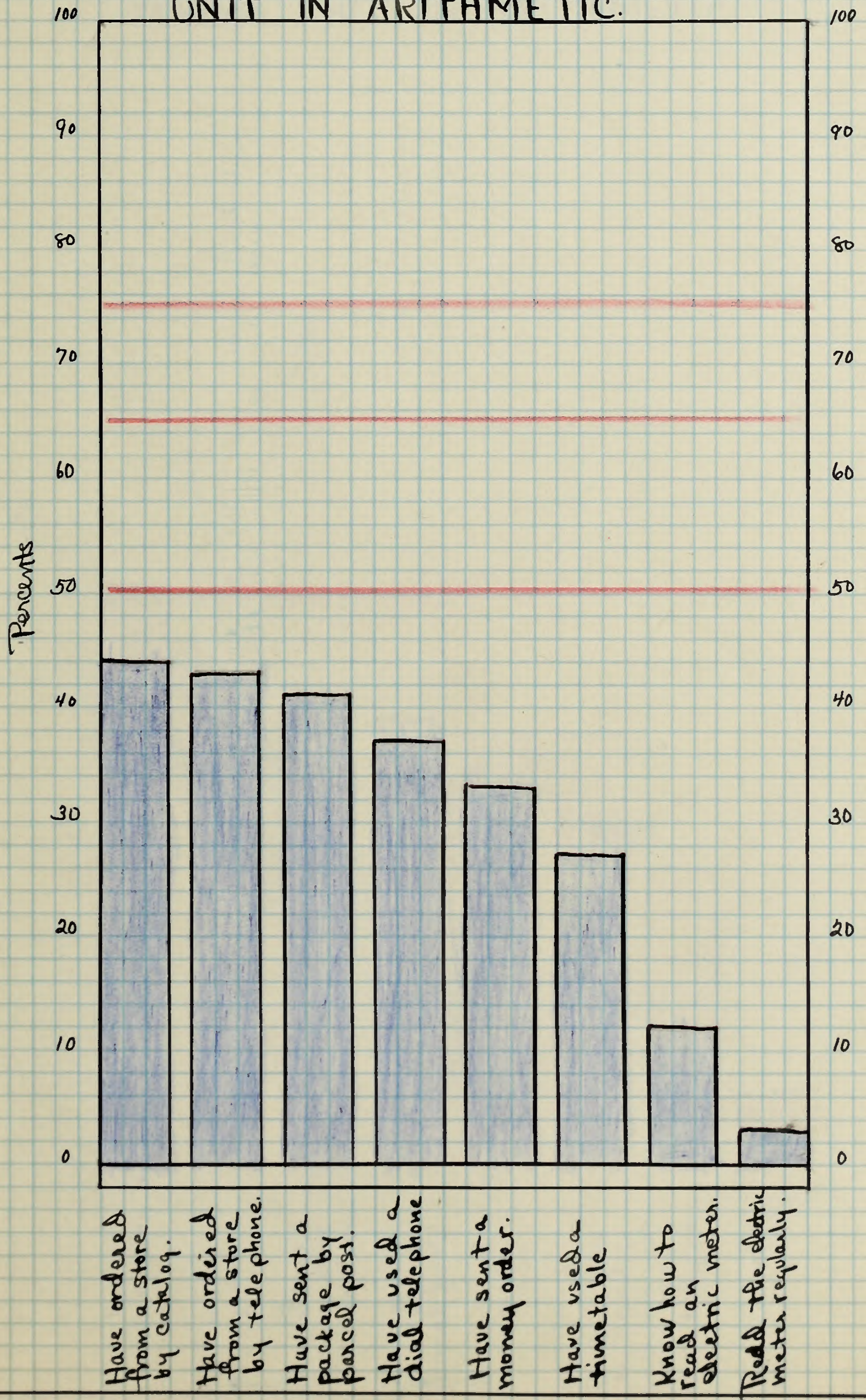


Kinds of insurance reported to be in family.

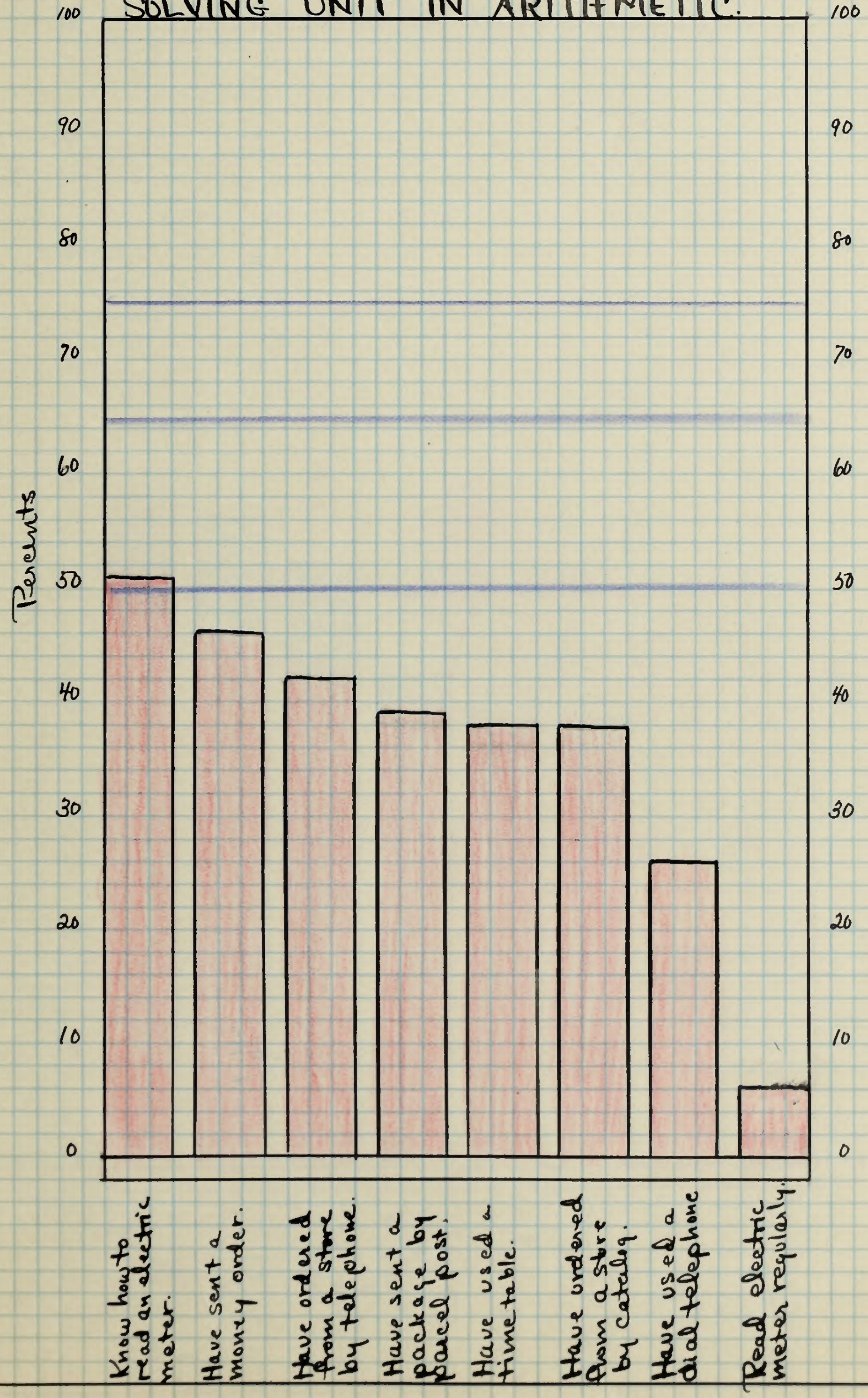
GRAPH 57 - SHOWING THE PERCENTAGE OF PUPILS IN GRADES 6, 7 and 8 HAVING A KNOWLEDGE OF AND EXPERIENCE WITH CERTAIN BUSINESS HELPS.



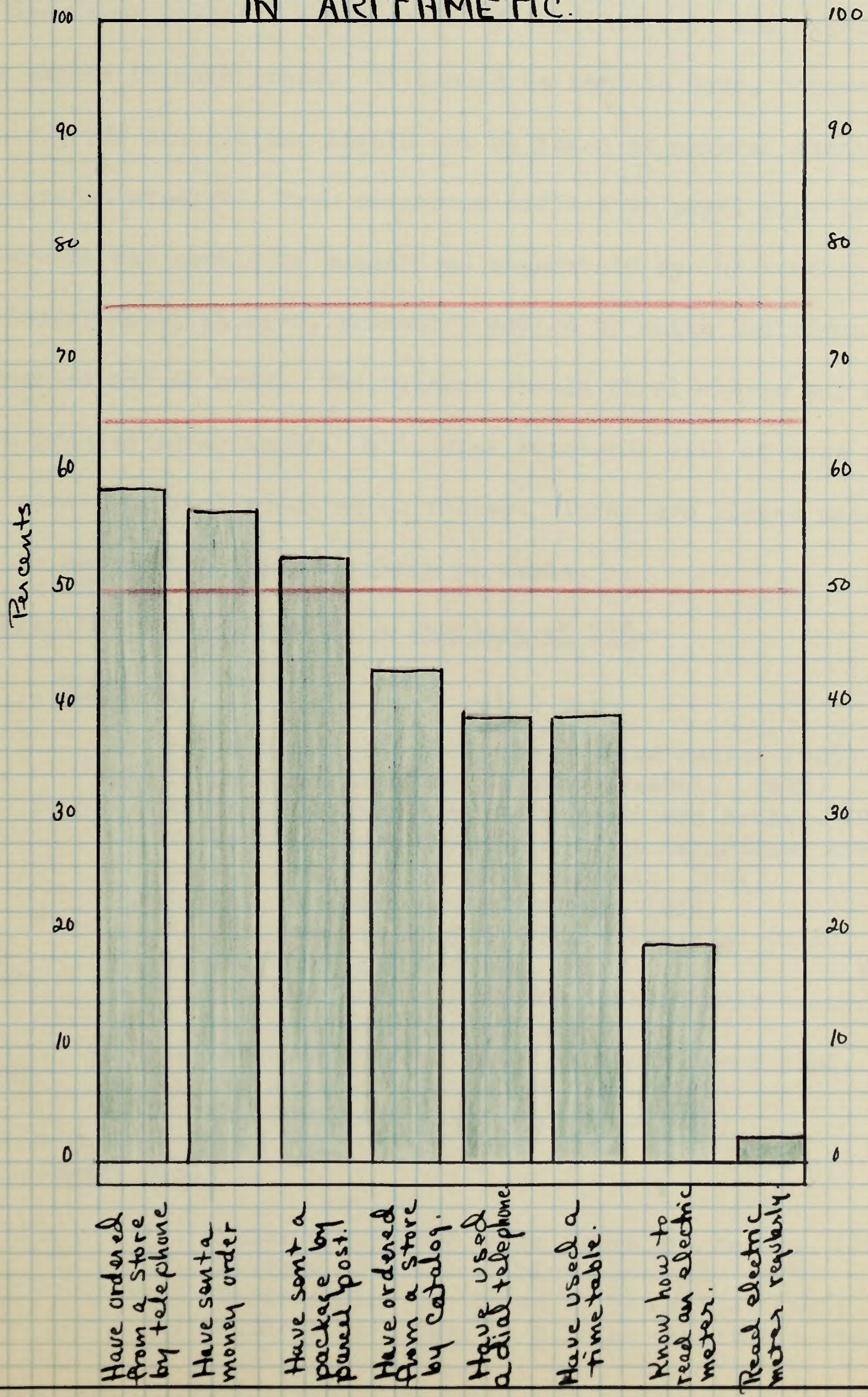
GRAPH 58 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS IN GRADE 6 WITH CERTAIN BUSINESS HELPS, WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 59- SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS IN GRADE 7 WITH CERTAIN BUSINESS HELPS. WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



GRAPH 60 - SHOWING THE KNOWLEDGE AND EXPERIENCE OF PUPILS IN GRADE 8 WITH CERTAIN BUSINESS HELPS. WITH THREE DIFFERENT STANDARDS FOR CHOOSING THIS TOPIC AS A BASIS FOR AN INFORMATIONAL PROBLEM-SOLVING UNIT IN ARITHMETIC.



Chapter IV

SPECIFIC CONCLUSIONS

From the summary graphs 61, 62 and 63, it will be possible to draw some specific conclusions of the interests and experiences of the pupils in each grade. It should be kept in mind, however, that these grade conclusions should not be taken as general conclusions for the grades studies. Each classroom differs in pupil experiences and interests and should be summarized separately by the teacher. The following does, however, present a method by which individual classroom summaries may be made. The teacher should first choose her standard, then proceed accordingly. All three standards will be used in drawing the specific conclusions which follow. Items are listed according to the descending order of their percents.

A. Specific Conclusions for a Standard of 75%.--

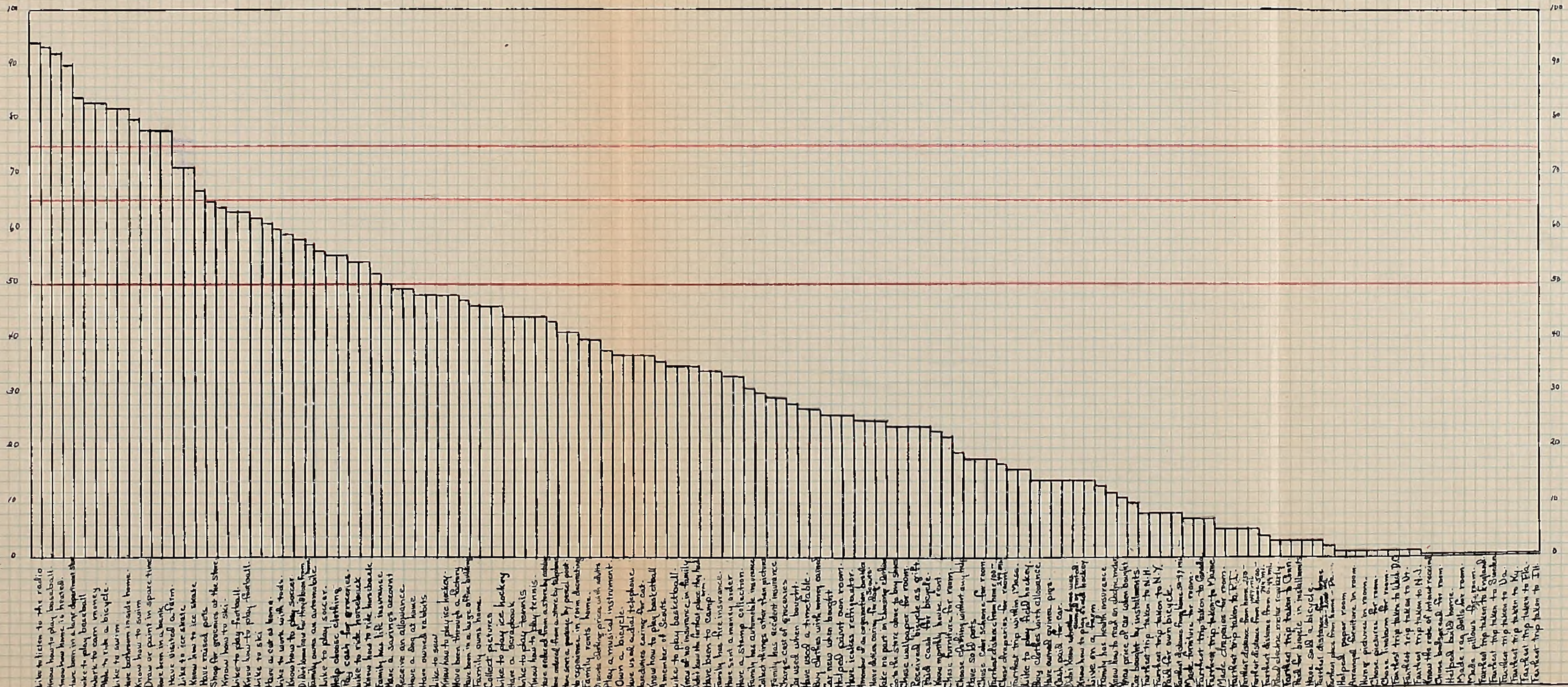
Grade Six

1. Children like to listen to the radio. (94%)
2. Children know how to play baseball. (93%)
3. Children know how their homes are heated. (92)
4. Children have been in a large department store. (90%)
5. Children like to play baseball. (84%)
6. Children work to earn money. (83%)
7. Children are able to ride a bicycle. (83%)
8. Children like to swim. (82%)
9. Children have a bathroom inside their homes. (82%)
10. Children know how to swim. (80%)
11. Children draw or paint in their spare time. (78%)
12. Children have been in a bank. (78%)
13. Children have visited a farm. (78%)

Grade Seven

1. Children know how their homes are heated. (98%)
2. Children know how to play baseball. (94%)
3. Children like to listen to the radio. (94%)
4. Children have been in a large department store. (94%)

GRAPH 61- A DESCENDING SCALE GIVING A SUMMARY OF THE INTERESTS AND EXPERIENCES OF PUPILS IN GRADE 6 IN PERCENTS WITH THREE DIFFERENT STANDARDS FOR CHOOSING THESE TOPICS AS BASES FOR INFORMATIONAL PROBLEM-SOLVING UNITS IN ARITHMETIC



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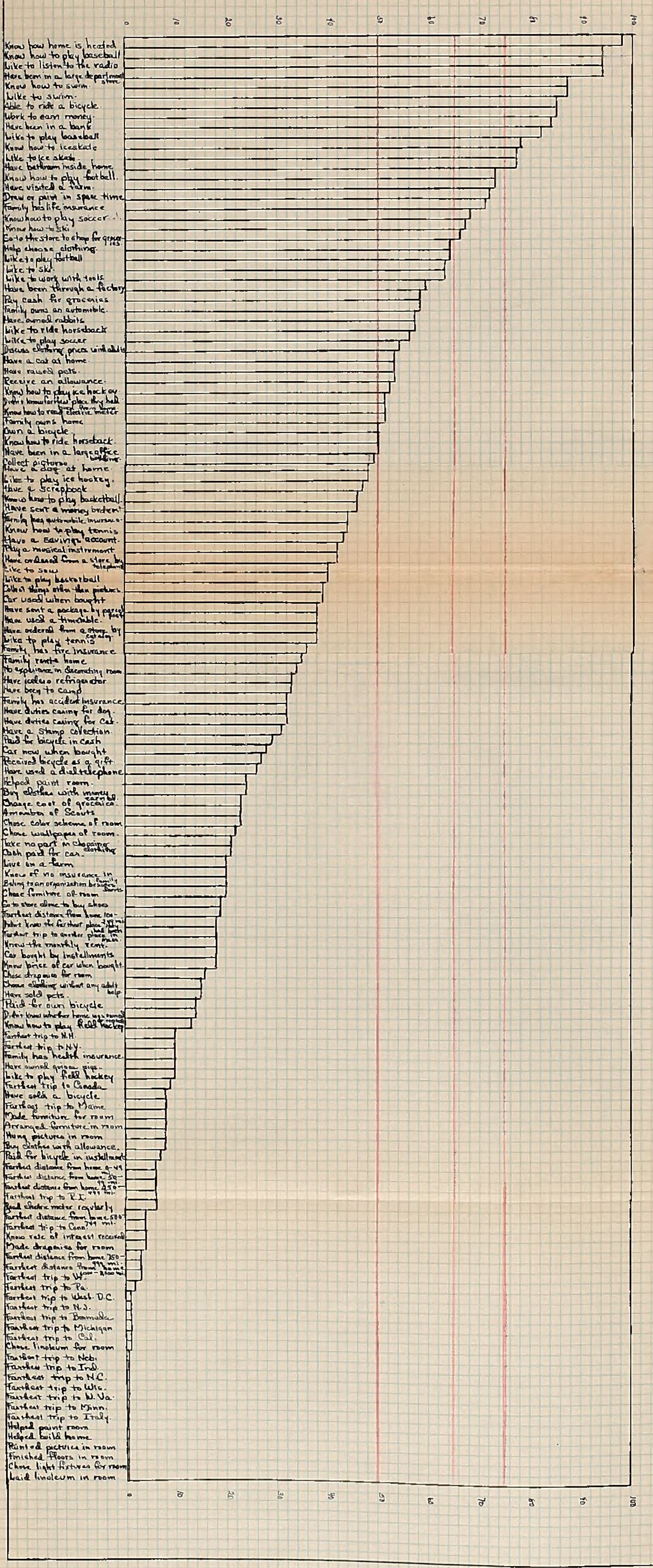
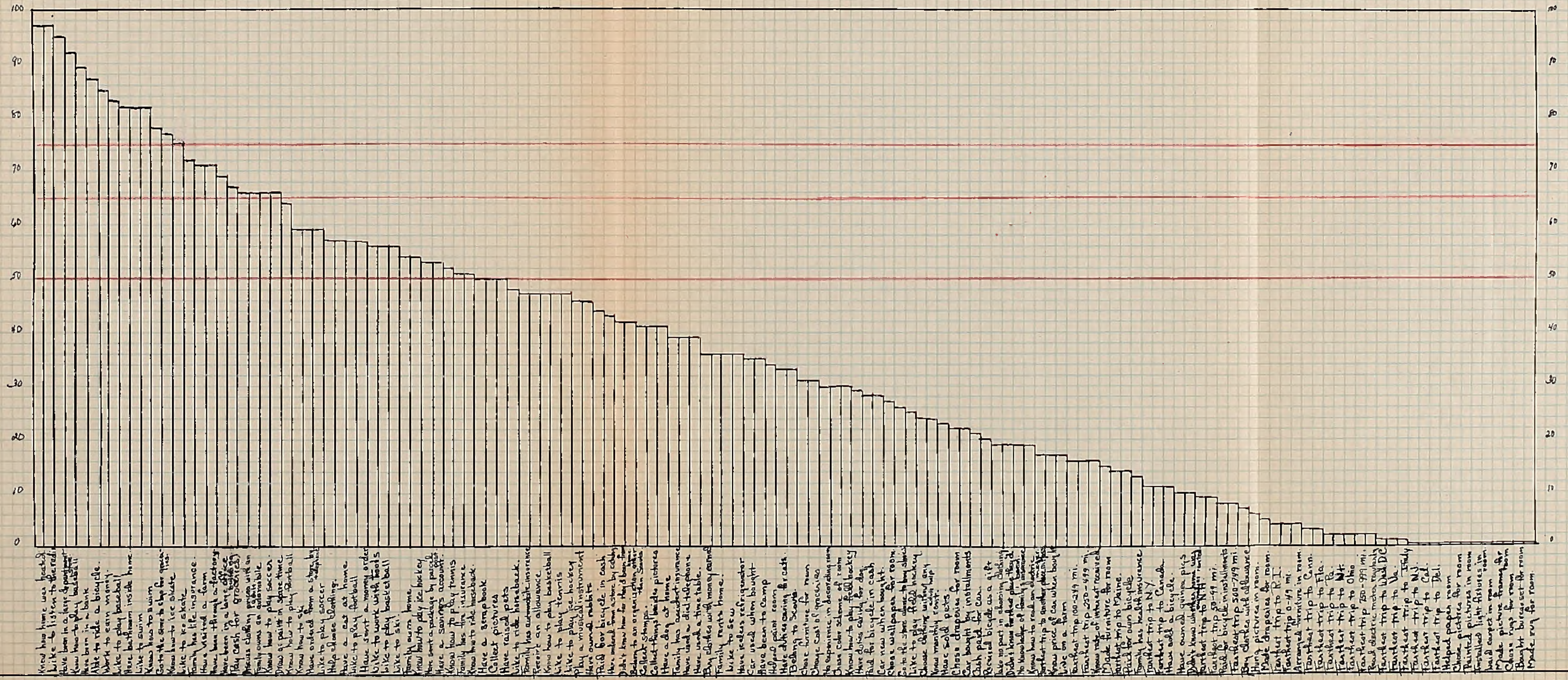
GRAPH 62 - A DESCENDING SCALE GIVING A SUMMARY OF THE INTERESTS AND EXPERIENCES OF PUPILS IN GRADE 7 IN PERCENTS WITH THREE DIFFERENT STANDARDS FOR CHOOSING THESE TOPICS AS BASES FOR INFORMATIONAL PROBLEM-SOLVING UNITS IN ARITHMETIC.



GRAPH 63 A DESCENDING SCALE GIVING A SUMMARY OF THE INTERESTS AND EXPERIENCES OF PUPILS IN GRADE 8 IN PERCENTS WITH THREE DIFFERENT STANDARDS FOR CHOOSING THESE TOPICS AS BASES FOR INFORMATIONAL PROBLEM-SOLVING UNITS IN ARITHMETIC.



5. Children know how to swim. (87%)
6. Children like to swim. (87%)
7. Children are able to ride a bicycle. (85%)
8. Children work to earn money. (85%)
9. Children have been in a bank. (84%)
10. Children like to play baseball. (82%)
11. Children know how to ice skate. (78%)
12. Children like to ice skate. (77%)
13. Children have a bathroom inside their homes. (77%)

Grade Eight

1. Children know how their homes are heated. (97%)
2. Children like to listen to the radio. (97%)
3. Children have been in a large department store. (95%)
4. Children know how to play baseball. (92%)
5. Children have been in a bank. (89%)
6. Children are able to ride a bicycle. (87%)
7. Children work to earn money. (85%)
8. Children like to play baseball. (83%)
9. Children have a bathroom inside their homes. (82%)
10. Children like to swim. (82%)
11. Children know how to swim. (82%)
12. Children go to the store to shop for groceries. (78%)
13. Children know how to ice skate. (77%)
14. Children like to ice skate. (75%)

B. Specific Conclusions for a Standard of 65%.--

All the conclusions for a 75% standard will apply here with the following additions:

Grade Six

1. Children like to ice skate. (71%)
2. Children know how to ice skate. (71%)
3. Children have raised pets. (67%)
4. Children go to the store to shop for groceries. (65%)

Grade Seven

1. Children know how to play football. (73%)
2. Children have visited a farm. (73%)
3. Children draw or paint in their spare time. (72%)
4. Children's families have life insurance. (71%)
5. Children know how to play soccer. (68%)
6. Children know how to ski. (67%)
7. Children go to the store to shop for groceries. (66%)

Grade Eight

1. Children's families have life insurance. (72%)
2. Children have visited a farm. (71%)
3. Children have been through a factory (71%)
4. Children have been in a large office building. (69%)
5. Children pay cash for groceries. (67%)
6. Children discuss the prices of clothing with an adult. (66%)
7. Children's families own automobiles. (66%)
8. Children know how to play soccer. (66%)
9. Children draw or paint in their spare time. (66%)

C. Specific Conclusions for a Standard of 50%.

All the conclusions for standards of 75% and 65% will apply here with the following additions:

Grade Six

1. Children know how to ski. (64%)
2. Children like to play football. (63%)
3. Children know how to play football. (63%)
4. Children like to ski. (62%)
5. Children have a cat at home. (61%)
6. Children like to work with tools. (60%)
7. Children know how to play soccer. (59%)
8. Children's families own automobiles. (57%)
9. Children like to play soccer. (56%)
10. Children help choose clothing. (55%)
11. Children pay cash for groceries. (55%)
12. Children like to ride horseback. (54%)
13. Children know how to ride horseback. (54%)
14. Children's families have life insurance. (52%)
15. Children have savings accounts. (50%)

Grade Seven

1. Children help choose clothing. (64%)
2. Children like to play football. (64%)
3. Children like to ski. (63%)
4. Children like to work with tools. (63%)
5. Children have been through a factory. (59%)
6. Children pay cash for groceries. (58%)
7. Children's families own automobiles. (58%)
8. Children havd owned rabbits. (57%)
9. Children like to ride horseback. (57%)
10. Children like to play soccer. (56%)
11. Children discuss the prices of clothing with an adult. (54%)
12. Children have a cat at home. (53%)

13. Children have raised pets. (53%)
14. Children receive an allowance. (53%)
15. Children know how to play ice hockey. (52%)
16. Children know how to read an electric meter. (51%)
17. Children's families own homes. (51%)
18. Children own bicycles. (50%)
19. Children know how to ride horseback. (50%)
20. Children have been in a large office building. (50%)

Grade Eight

1. Children know how to play football. (64%)
2. Children know how to ski. (59%)
3. Children have ordered from a store by telephone. (59%)
4. Children like to play soccer. (59%)
5. Children help choose clothing. (57%)
6. Children have a cat at home. (57%)
7. Children like to play football. (57%)
8. Children have sent a money order. (57%)
9. Children like to work with tools. (56%)
10. Children like to play basketball. (56%)
11. Children like to ski. (56%)
12. Children's families own homes. (54%)
13. Children know how to play ice hockey. (54%)
14. Children have sent a package by parcel post. (53%)
15. Children have a savings account. (53%)
16. Children know how to play tennis. (52%)
17. Children's families have fire insurance. (51%)
18. Children know how to ride horseback. (51%)
19. Children have scrapbooks. (50%)
20. Children collect pictures. (50%)
21. Children have raised pets. (50%)

TABLE 54 - SHOWING THE PERCENTS FOR GRADES 6, 7 and 8 OF THE KNOWLEDGE AND EXPERIENCES REACHING ANY ONE OF THE THREE CHOSEN STANDARDS

Knowledge or Experience	Percent of Grade 6	Percent of Grade 7	Percent of Grade 8
1. Children like to listen to the radio.	94	94	97
2. Children know how to play baseball.	93	94	92
3. Children know how their homes are heated.	92	98	97
4. Children have been in a large department store.	90	94	95
5. Children like to play baseball.	84	82	83
6. Children work to earn money.	83	85	85
7. Children are able to ride a bicycle.	83	85	87
8. Children like to swim.	82	87	82
9. Children have a bathroom inside their homes.	82	77	82
10. Children know how to swim.	80	87	82
11. Children draw or paint in their spare time.	78	72	66
12. Children have been in a bank.	78	84	89
13. Children have visited a farm.	78	73	71
14. Children like to ice skate.	71	77	75

(This table is continued on the following page.)

Knowledge or Experience	Percent of Grade 6	Percent of Grade 7	Percent of Grade 8
15. Children know how to ice skate.	71	78	77
16. Children have raised pets.	67	53	50
17. Children go to the store to shop for groceries.	65	66	78
18. Children know how to ski.	64	67	59
19. Children like to play football.	63	64	57
20. Children know how to play football.	63	73	64
21. Children like to ski.	62	63	56
22. Children have a cat at home.	61	53	57
23. Children like to work with tools.	60	63	56
24. Children know how to play soccer.	59	68	66
25. Children's families own automobiles.	57	58	66
26. Children like to play soccer.	56	56	59
27. Children help choose clothing.	55	64	57
28. Children pay cash for groceries.	55	58	67
29. Children like to ride horseback.	54	57	--
30. Children know how to ride horseback.	54	50	51
31. Children's families carry life insurance.	52	71	72

(This table is concluded on the following page.)

Knowledge or Experience	Percent of Grade 6	Percent of Grade 7	Percent of Grade 8
32. Children have savings accounts.	50	--	53
33. Children have been through a factory.	--	59	71
34. Children have owned rabbits.	--	57	--
35. Children discuss the prices of clothing with an adult.	--	54	66
36. Children receive an allowance.	--	53	--
37. Children know how to play ice hockey.	--	52	54
38. Children know how to read an electric meter.	--	51	--
39. Children's families own their homes.	--	51	54
40. Children own bicycles.	--	50	--
41. Children have been in a large office building.	--	50	69
42. Children have ordered from a store by telephone.	--	--	59
43. Children have sent a money order.	--	--	57
44. Children like to play basketball.	--	--	56
45. Children have sent a package by parcel post.	--	--	53
46. Children know how to play tennis.	--	--	52
47. Children's families have fire insurance.	--	--	51
48. Children have scrapbooks.	--	--	50
49. Children collect pictures.	--	--	50

(This table is continued from the preceding page.)

D. Significance of the Percentage Difference

Table 54 shows the difference in the percent of knowledge and experience for each grade. Statistically speaking, are these differences significant?

The Holzinger equation for the probably error of percentage frequency, Equation 102, page 243, of his Statistical Methods for Students of Education (1928) can be applied here. This equation is as follows:

$$\text{P. E.}_{\text{f.p.}} = .6745\sqrt{\frac{fp\ (100-fp)}{N}}$$

In this equation fp is the percentage score or frequency, and N is the number of cases.

Following the application of the above equation, the formula for the probable error of the percentage difference, Holzinger formula 102a, should be applied.

$$\text{P. E.}_{\text{(diff.)}} = \sqrt{(\text{P. E. of 1st percent})^2 + (\text{P. E. of 2nd percent})^2}$$

To illustrate the method of using the above formulas, they will be applied to the tenth item of table 54, that of knowing how to swim.

Applying the Holzinger formula 102 to the 80% for grade 6, we have:

$$\text{P. E. of } 80\% = .6745\sqrt{\frac{80\ (100-80)}{153}} = \pm\ 2.18$$

Therefore, the percentage 80, in this particular case, equals 80 ± 2.18.

Using the same formula for the 87% of grade 7, we have:

$$\text{P. E. of } 87\% = .6745\sqrt{\frac{87\,(100 - 87)}{157}} = \pm\ 1.81$$

Therefore, the percentage 87, in this particular case, equals 87 ± 1.81.

Now, by applying the Holzinger formula 102a in order to secure the probable error of the difference of these two percents, 80 and 87, we have:

$$\text{P. E. (diff.)} = \sqrt{(2.18)^2 + (1.81)^2} = 2.83$$

Therefore, the difference 87-80 may be written as 7 ± 2.83.

Since the actual difference (7) is not as much as five times the probable error of the difference (2.83), statistically speaking the difference is not significant.

Applying equation 102 to the 62% for grade 6 in the twenty-first item of table 54, we have:

$$\text{P. E. of } 62\% = .6745\sqrt{\frac{62\,(100-62)}{153}} = \pm\ 2.65$$

Therefore, the percentage 62, in this particular case, equals 62 ± 2.65.

Now, by applying equation 102a, we can secure the probable error of the difference of the 80% in item 10 for grade 6, and the 62% in item 21 for the same grade.

$$\text{P. E. (diff.)} = \sqrt{(2.18)^2 + (2.65)^2} = 3.43$$

Therefore, the difference 80-62 may be written 18 ± 3.43.

Since the actual difference (18) is more than five times the probable error of the difference (3.43), statistically speaking the difference is significant.

By applying this same procedure, other percentage differences in table 54 may be figured for their statistical significance.

This figuring of statistical differences will prove helpful to the teacher in two ways. When an item in Table 54 has reached a standard in all three grades, a statistical difference in these percents will help the teacher in deciding in which grade to make use of this experience. If no statistical difference is apparent then it would not matter in which grade it might be used.

The second way in which this method will help is in deciding which of several items should be used first in a certain grade. If two percents appearing in Table 54 for any one grade are statistically significant, then the higher one should be used in a problem-unit. If no statistical difference is evident, then it would not matter which one was used first. More than 2600 differences can be figured from Table 54.

Although valuable statistically, the figuring of the significance of percentage differences is probably not of practical value in a study of this kind. The purpose of a questionnaire of the type used here is to give information to the teacher concerning the experiences and interests of her pupils so that she can make use of them. Probably the raw percents themselves without statistical treatment will be sufficient data upon which she can base her judgment.

CHAPTER V

IMPLICATIONS FOR EDUCATION

From graphs 61, 62 and 63, and from table 54 the following informational problem-solving units are suggested.

A. For Grade Six:

1. Buying a radio.
2. Laying out a baseball diamond.
3. Buying baseball equipment.
4. Comparative costs of different methods of heating the home.
5. The arithmetic of a department store clerk.
6. Budgeting one's income.
7. The cost of bathroom equipment.
8. Banking.
9. The arithmetic of a farmer.
10. Buying a pair of ice skates.
11. The cost of raising pets.
12. Buying groceries.
13. Buying a pair of skis.
14. Buying football equipment.
15. Laying out a football field.
16. Planning and building furniture.
17. Laying out a soccer field.
18. Buying soccer equipment.
19. Buying an automobile.
20. Comparative costs of running different automobiles.
21. The cost of clothing a junior high school pupil.
22. Buying life insurance.
23. A savings account.

B. For Grade Seven: (Any of the above not used and the following:)

1. The show factory. (a local unit)
2. Raising and selling rabbits.
3. Budgeting an allowance.
4. Buying ice hockey equipment.
5. Reading the electric meter.
6. Buying a home.
7. Buying a bicycle.
8. The arithmetic of an office clerk.

C. For Grade Eight: (Any of Grade 6 and Grade 7 not used and the following:)

1. Buying from a store by telephone.
2. The post office. (Money Orders, Parcel Post)
3. Buying basketball equipment.
4. Laying out a basketball court.
5. Buying tennis equipment.
6. Laying out a tennis court.
7. Buying fire insurance.

CHAPTER VI

SUMMARY AND GENERAL CONCLUSIONS

As far as the author is aware, this is the first study of its kind at these grade levels. Previously mentioned studies of Washburne and Morphett, Connor, and White have shown that children achieve greater success when arithmetic problems are based on situations within their interest and experience. How to discover these interests and experiences would seem to be the next problem to be met and the one to which this thesis has attempted to present an answer. The questionnaire method, touching many sides of the child's life, was used.

The validity of the data collected may be criticised. Obviously there are many variables. A study of the questionnaires as filled out by the pupils makes one aware of the effect of the teacher's attitude. Then, of course, there is always the question of truthfulness of child responses. The data as presented does, however, show a trend. Five hundred subjects is too small a number to justify any definite conclusions, but the findings show certain trends which seem significant.

1. A carefully planned and worded questionnaire will bring forth valuable information from pupils concerning their experiences and interests.

2. Many experiences and interests apparently have no correlation with chronological age.

3. Individual classrooms differ widely making it essential for teachers to be concerned with the responses of their own classes rather than with the total grade results.

4. Having discovered the experiences and interests of the pupils

in her classes, it should be possible for the teacher to plan informational problem-solving units in arithmetic based upon the information received through the questionnaire, - at any rate to plan more intelligently than she could without such information.

5. A standard of 50, 65, or 75 percent may be helpful in choosing class experiences upon which to base problem-units, but in certain cases, when an activity is closely connected with adult life and in which the children have had little experience, the standard may not prove to be an adequate guide. In such a case, the social-utility of the acitivity in adult life should be the deciding factor.

CHAPTER VII

FURTHER SUGGESTED STUDIES

Being the first of its kind, the present study should lead the way for others that will give more information on the use of pupils' interests and experiences as a basis for problem-units.

1. A list of informational problem-solving units for each grade based upon the experiences and interests discovered through the questionnaire of this study.

2. A simplified questionnaire which will secure as much information as is possible but which will facilitate tabulation.

3. A study of the 75%, 65% and 50% standards to determine which produces the best results.

4. Other studies using methods other than the questionnaire to discover pupil interests and experiences.

5. A study of sex differences with suggestions for separate units for boys and girls if the differences are significant.

CHAPTER VIII

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